

# Community College *of* Philadelphia

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## STUDENT OUTCOMES COMMITTEE OF THE BOARD OF TRUSTEES

Thursday, April 2, 2015

1:30 p.m.

Room M2-34

### **AGENDA**

- (1) 1:30 p.m. Executive Session
- (2) Public Session
  - (a) Approval of the Minutes of February 5, 2015 (A)
  - (b) Middle States Update (I)
  - (c) Student Outcomes Dashboard – 2013 -14 Data (I)
  - (d) Foundational Math Presentation (I)
  - (e) Academic Audits:
    - Digital Forensics A.A.S. (A)
  - (f) Recommendation to Discontinue Certificates:
    - Academic Certificate in Justice (A)
    - Biotechnology Proficiency Certificate (A)
    - Biomedical Technician Training Proficiency Certificate (A)
  - (g) Accounting AAS Degree Audit Update (I)

#### **Attachments:**

Minutes of February 5, 2015

Student Outcomes Dashboard

Academic Program Audit: Digital Forensics A.A.S.

Summary Recommendations to Discontinue Certificates

Recommendation to Discontinue the Academic Certificate in Justice

Recommendation to Discontinue the Biotechnology Proficiency Certificate

Recommendation to Discontinue the Biomedical Technician Training Proficiency Certificate

Accounting AAS Degree Audit Update

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

**MINUTES**

**Thursday, February 5, 2015**

**1:30 p.m. – Room M2-34**

**Presiding:** Ms. Stacy Holland

**Present:** Dr. Judith Gay, Dr. Donald Generals, Mr. Chad Dion Lassiter, Dr. Judith Rényi

**Guests:** Ms. Rebecca Fabiano, Mr. Andres Marin, Dr. Marian McGorry, Mr. Osvil Acosta-Morales, Mr. John Moore, Mr. David Prejsnar, Mr. Richard Saxton, Dr. Sharon Thompson

**(1) Executive Session**

None

**(2) Public Session**

**a. Approval of Minutes of November 6, 2014 (Action Item)**

The minutes were accepted.

**b. Academic Audits**

**1. Religious Studies (AA)**

Mr. Moore reviewed highlights of the Religious Studies AA degree program audit including issues with enrollment, retention and student success. Mr. Acosta-Morales and Mr. Prejsnar said that the department faculty are committed to the program and students are passionate about it. Board members commented that they would like to see information about success in transferring. Board members also asked about faculty engagement with the program before the audit was done. Mr. Acosta-Morales said there was a misperception in the department that things were fine with the program. The Board members stated that they want to see hard numbers in the form of targets.

**Action: The Student Outcomes Committee of the Board recommends that the Board accept the audit with amendments to the recommendations to include: identification of metrics/targets; identification of community partnerships; a strategy for recruitment and retention; comparison groups for benchmarking; and information about where students are going. The Committee recommends targets and potential partnerships be identified in a memo in one month, and a follow-up report be provided in October 2015.**

## **2. Culinary Arts (AAS), Hospitality Management (AAS), Professional Cooking Proficiency Certificate**

Mr. Moore reviewed the highlights of the audits. The Culinary Arts Program has increasing enrollment but there are issues with retention and graduation. The Hospitality Management Program has stable enrollment and better retention and graduation than the College average. The Professional Cooking Proficiency Certificate has not been assessed. Chef Andres Marin commented on program activities. He stated that program faculty are interested in revising the program to include tourism, catering and other aspects of the industry. Board members commented that the program may need more stackable credentials and partnerships, such as with OIC. Board members agreed they want to see targets and timelines for each recommendation. Both should be a “stretch.”

**Action: The Student Outcomes Committee of the Board recommends that the Board accept the audit, require targets be identified in a memo in one month, and a follow-up report be provided in October 2015.**

## **3. Automotive Technology—Automotive Service Technology (AAS), Automotive Technology—Marketing & Management Option (AAS), Automotive Service Proficiency Certificate**

Mr. Moore reviewed highlights of the audits. Enrollment has grown and the department has been efficient in scheduling courses. Issues include graduation rate and credits attempted to credits earned. Mr. Saxton stated that the faculty are considering adding stackable certificates but they are committed to keeping the degree program. Some employers are interested in students who earn a degree. Mr. Moore also mentioned that the program is accredited and has a strong advisory committee.

**Action: The Student Outcomes Committee of the Board recommends that the Board accept the audits, including the recommendation to eliminate the Marketing & Management Option and to consider whether to maintain the proficiency certificate. The Automotive Technology—Automotive Service Technology (AAS) and the Automotive Service Proficiency Certificate are recommended for recertification for five years.**

## **4. Youth Work Academic Certificate and Proficiency Certificate**

Ms. Holland stated that she will abstain from voting because she knows the program coordinator, Ms. Fabiano, and was involved in supporting the program when it started.

Mr. Moore provided an overview of the audits. Issues include weak retention and graduation rates and students departing from the program in poor academic standing. Courses are under enrolled. Ms. Fabiano stated that there is a need to have qualified workers in the field. She believes the College could be a leader in the field and she has already identified many students who could enroll. She stated that there have been three department heads since she started in the position, there is no job description for her position and there had been a lack of support and training. Dr. Thompson said the department has been considering different possibilities for the Youth Work courses including psychology, education, and behavioral health and human services. Ms. Holland stated that the labor market information is not very helpful as presented because the demand for the program is local. There is an issue in that the market information that is available is broad and does not include Youth Work. There was a discussion of the origin of the program. The program was created from grant funding that did not continue. Ms. Holland said there is still a demand for the education. She suggested the program needs to intentionally recruit and retain students. No other place in the City is doing youth development work. A financial model should be built for the program.

**Action: The Student Outcomes Committee of the Board recommends that the Board accept the audits, including the recommendation to discontinue the academic certificate. The Committee recommends preserving the proficiency certificate for at least one year, discuss what department is interested in ownership, create a plan to strengthen the program, develop a clear outline of administrative duties and create a solid connection with the youth system.**

**c. Recommendation to Discontinue Academic Certificates: Disability Studies and Social Gerontology**

The Student Outcomes Committee of the Board agreed to have an electronic vote on discontinuing the Disability Studies Academic Certificate and the Social Gerontology Academic Certificate.

**d. Accounting AAS Degree Audit Update**

Postponed

**e. Student Outcomes Dashboard—2013-14 Preliminary Data**

Postponed

**f. Middle States Update**

Postponed

The meeting was adjourned.

**Next Meeting:**

The next meeting of the Student Outcomes Committee of the Board is scheduled for Thursday, April 2, 2015 at 1:30 p.m. in conference room M2-34.

**Attachments:**

Minutes of November 6, 2014

Audit Summaries

Religious Studies Audit

CAHM Audits

Automotive Technology Audits

Youth Work Audits

Recommendation to Discontinue the Disability Studies Academic Certificate in the Behavioral Health Human Services Curriculum

Recommendation to Discontinue the Social Gerontology Academic Certificate in the Behavioral Health Human Services Curriculum

Accounting AAS Degree Audit Update

Student Outcomes Dashboard

**Community College of Philadelphia**  
**Student Outcomes Committee of the Board**  
**2013-2014 Dashboard**

Draft

ENROLLMENT	2012-13 Actual	2013-14 Goal	2013-14 Actual	Met/Exceeded Goal?
New Full-time (Fall Admission) <sup>1</sup>	1,614	1,630	1,600	No
New Part-time (Fall Admission) <sup>1</sup>	3,380	3,407	3,573	Yes
Annual Unduplicated New Students <sup>2</sup>	10,222	10,321	10,529	Yes
Total Annual FTE <sup>2</sup>	15,116	15,121	15,050	No
COLLEGE READINESS UPON ENTRANCE	2012-13 Actual	2013-14 Goal	2013-14 Actual	Positive Change?
All Developmental (Fall Admission) <sup>4</sup>	24.8%	24.1%	28.9%	No
Some Developmental (Fall Admission) <sup>4</sup>	47.7%	46.5%	43.5%	Yes
College Level (Fall Admission) <sup>4</sup>	27.5%	28.3%	27.6%	No Change
PERSISTENCE	2012-13 Actual	2013-14 Goal	2013-14 Actual	Positive Change?
Fall to Spring New Full-time <sup>3</sup>	79.8%	81.4%	83.6%	Yes
Fall to Spring New Part-time <sup>3</sup>	65.7%	67.7%	70.0%	Yes
Fall to Fall New Full-time <sup>3</sup>	56.3%	56.9%	55.8%	No
Fall to Fall New Part-time <sup>3</sup>	46.9%	47.4%	43.7%	No
% Credit Hours Earned to Attempted <sup>4</sup>	88.0%	90.0%	87.4%	No
TRANSFER AND COMPLETION	2012-13 Actual	2013-14 Goal	2013-14 Actual	Positive Change?
New Full-time Students Earned Degrees/Certificates within Three Years <sup>3</sup>	12.0%	12.25%	12.5%	Yes
New Part-time Students Earned Degrees/Certificates within Six Years <sup>3</sup>	9.3%	10.23%	11.1%	Yes
New Full-time Students Who Left the College Prior to Earning a Degree and Transferred within 3 years <sup>5</sup>	24.0%	22.8%	27.3%	No
New Part-time Students Who Left the College Prior to Earning a Degree and Transferred within 6 years <sup>5</sup>	28.0%	27%	26.7%	Yes
WORKFORCE PREPARATION AND EMPLOYMENT	2012-13 Actual	2013-14 Goal	2013-14 Actual	Positive Change?
Career Program Job Placement Rates <sup>6</sup>	68.4%	70.1%	79.0%	Yes
Career Program Graduates' Wages and Wage Growth <sup>6</sup>	\$36,235		\$39,737	Yes
Licensure Exam Pass Rates <sup>7</sup>	5	6	5	No Change

<sup>1</sup> Source: Harrisburg Enrollment Report, All new to Community College of Philadelphia full-time and part-time students

<sup>2</sup> Source: Institutional Research Unduplicated Annual Enrollment Report, All enrolled students

<sup>3</sup> Source: Institutional Research Cohort Retention and Completion Reports, All new to Community College of Philadelphia full-time and part-time students

<sup>4</sup> Source: Institutional Research Academic Performance Measures, Entering Developmental includes all new students; Credit Hour completion ratio includes all enrolled students

<sup>5</sup> Source: Annual NCCBP (National Community College Benchmark Project) Report

<sup>6</sup> Source: Community College of Philadelphia annual Graduate Survey

<sup>7</sup> Source: Dean of Math, Health and Science Division

**Community College of Philadelphia**

**Academic Program Audit**

**Digital Forensics A.A.S.**

Authors:

Christine McDonnell

John V. Moore III

Pam King

Date: February 2015

## **I. Executive Summary**

Digital Forensics is a relatively new (Fall 2005), direct-to-work program. The Program prepares students for careers in government, the private sector, and law. Over the past five years, the Program curriculum has changed to not only include computers, but also other digital devices.

Enrollment in the Program has steadily increased over the past five years, and average enrollment is approximately 108 students per year. Digital Forensics generally records stronger outcomes data than the Division and the College, despite a lower proportion (than the College) of students placing at college level. The Program records a higher proportion of students in good academic standing, stronger retention, and fewer students not returning to the Program compared to the Division and the College.

Digital Forensics courses yield high course completion rates, additionally students' record high long-term success at departure and a comparable graduation rate to the College. These trends indicate the possibility that students could utilize this program for the purpose of transfer and/ or skills development. Digital Forensics records a transfer rate similar to that of the College, even though it is an A.A.S. degree. The program has awarded 49 degrees in the past five years.

The Program includes four adjunct faculty members with diverse experience in the field. Faculty participate in domestic and international law enforcement training and support, develop software and tools used in the industry, serve on committees and associations, serve as faculty members at several colleges and universities, and hold certifications in many forensic software products.

The digital forensics field is expected to grow rapidly in the coming years; jobs are forecasted to increase in local and federal law enforcement, as well as corporate security and private investigation.

Consistently, the Program runs sections at one third to one half of capacity, while the College sections average 80% of capacity. During the fall of 2014, three of the five sections offered were cancelled due to low enrollment. Although enrollment has been low for the past five years, faculty members posit that the program's name change compounded the problem.

The Program has assessed all five of the program level student learning outcomes; only one outcome, however, is in the standard format, and therefore only that program has been uploaded to SharePoint.

## **II. Program**

The Digital Forensics program provides a sound educational foundation for the performance of professional activities within the digital forensics arena. A sequence of courses is offered that will enable students to develop a knowledge base in computer crime, digital evidence, and technological investigations. Students will also learn to adopt a set of professional values and develop skills related to professional activity in the field of digital forensics. Students completing the Digital Forensics program will be prepared to enter the field of digital forensics in a public or private environment as technology-focused crime



investigators, digital forensics analysts or examiners, digital evidence technicians, Internet security specialists, and network security analysts. Individuals currently working in this or a related field will substantially enhance their knowledge and skills.

**A. History and Revisions to the Curriculum**

The Digital Forensics Program was modified in 2014 when the name was changed from Computer Forensics to Digital Forensics, and the focus was broadened to not only include computers but other digital devices such as flash drives and cell phones. This change is consistent with programs at local baccalaureate institutions to which our students may transfer.

Along with the 2014 program revision, courses were also revised. All courses in the Program changed from CF (computer forensics) to DF (digital forensics). Additionally, CF 240: Computer Forensics Seminar and Practicum was replaced by DF 250: Digital Forensics Case and Lab Management. There were two main reasons for this revision. Firstly, CF 240 included an internship, and although an internship in the field would be very valuable, most employers will not hire interns due to the sensitivity of the data they are using. Secondly, technology constantly changes, and in order to stay applicable to the digital forensics field, adjustments are required to keep the program relevant.

In 2006, CF 203: Networking and Forensics was added to the curriculum. The focus of this course is on students obtaining the tools and skills necessary to recover information and/or evidence from computer networks and networking equipment in a forensically sound manner.

## B. Curriculum Sequence

Course Number and Name	Pre & Co-requisites	Credits	Gen Ed Req.
First Semester			
ENGL 101 - English Composition I		3	ENGL 101
JUS 101 - Survey of Justice		3	
CIS 103 - Applied Computer Technology		3	Tech Comp
MATH 118 - Intermediate Algebra (or higher)		3	Mathematics
CIS 105 - Computer Systems Maintenance		4	
Second Semester			
ENGL 102 - The Research Paper	ENGL 101 a grade of "C" or better	3	ENGL 102, Info Lit
CIS 150 - Network Technology		4	
JUS 221 - Criminal Investigation	JUS 101	3	
DF 101 - Introduction to Digital Forensics	CIS 105 and PLS 101 or JUS 101	3	
JUS 241 - Criminal Law	JUS 101 or PLS 101	3	
Third Semester			
JUS 261 - Criminal Evidence and Procedure	JUS 101	3	
DF 201 - Digital Forensics II	DF 101	3	
DF 203 - Networking and Forensics	DF 101, CIS 150	3	
Natural Science Elective		3/4	Natural Science
Social Science Elective		3	Social Science
Fourth Semester			
Social Science Elective		3	
Humanities Elective		3	Humanities
DF 220 - Intrusion Response	DF 101, CIS 150	3	
DF 250 - Digital Forensics Case & Lab Mgmt	DF 201	3	
General Elective		3	
<b>Minimum Credits Needed to Graduate:</b>		<b>62</b>	

### C. Curriculum Map

Required Courses	Programmatic Student Learning Outcomes				
	Apply criminal investigation techniques to basic computer forensic investigations.	Conduct analyses of digital media and recover digital evidence.	Explain the concept of intrusion and describe the techniques that intruders use to penetrate and damage networks.	Employ surveillance methods to prevent intrusions.	Uncover digital evidence of criminal activity in networks.
DF 101	I, R, A	I, R, A			
DF 201	R, A, M	R, A, M			
DF 203	R, A	R, A	I		I, R, A, M
DF 220	R, A		R, A, M	I, R, A, M	R, A, M
DF 240	R	R	R	R	R

I – Introduced

R-Reinforced & opportunity to practice

M-Mastery at exit level

A-Assessment evidence collected

### D. Future Direction for the Field/ Program

The digital forensics field is expected to expand rapidly in coming years, with an expected rate of growth between 22 and 27 percent. Most often, these jobs will be with law enforcement agencies, lawyers, and courts. Corporations attempting to cut down on fraud or who are large enough to justify their own investigative branch may also employ digital forensic professionals. Finally, private investigative firms often have a digital forensic professional on staff, and one may even contract out as a private investigator in this line of work.<sup>1</sup>

Because there is a relationship between the disciplines of e-discovery and legal technology/litigation support, the Program sees the potential for growth with a closer alignment of the disciplines. Additionally, a certificate in E-Discovery, which requires students to take Digital Forensics 101, is in the development process.

### III. Profile of the Faculty

#### A. Program Faculty

Faculty	Position	Courses Taught
Pamela King	Program Director, Adjunct Faculty Member	Digital Forensics II and Digital Forensics Case and Laboratory Management
William Jeitner	Adjunct Faculty Member	Introduction to Digital Forensics and Networking and Forensics
George McGuire	Adjunct Faculty Member	Introduction to Digital Forensics and Networking and Forensics
Zheng Liu	Adjunct Faculty Member	Intrusion Response

#### B. Faculty Engagement

The Program faculty are active within the field. They participate in national and international law enforcement support and training, development of training and software

<sup>1</sup> <http://career.myonlinecriminaljusticedegree.com/2012/02/computer-forensics-careers.html>

solutions, private industry consulting in e-discovery, network security, digital forensics, and cell phone forensics. Faculty members provided training and or law enforcement support for the following: Middle Atlantic Great Lakes Organized Crime Law Enforcement Network, the Federal Bureau of Investigation, High Technology Crime Investigators Association, Chester County PA's District Attorney's Office, BKForensics, U.S. Department of State, Office of Antiterrorism Assistance, U.S. Department of Homeland Security, ATF, Central Intelligence Agency, German Federal Police, Luxemburg Police Agency, and Dubai Police Unit. The faculty has served on various committees and associations, including the High Technology Crime Investigation Association, the PA Commission on Crime and Delinquency's Sub Committee on Crime and Technology, and the International Association of Computer Investigative Specialists.

The Digital Forensics faculty have served as faculty at several colleges and universities, including Chestnut Hill College, West Chester University, Desales University, Gwynedd Mercy University, and George Washington University. Faculty hold certifications in IACIS Computer Forensics, Access Data Certified Examiner, Mobile Phone Seizure Certification, Encase, Black Bag tools, and X-Ways Software products.

**IV. Program Characteristics**

**A. Student Profile**

Enrollment within the Program has increased by approximately 21% in the past five years, while in the same time period enrollment in the Division has decreased, and enrollment within the College has remained unchanged. The average headcount over the past five years was 108 students.

Table 1: Headcounts

		Fall 2009	Fall 2010	Fall 2011	Fall 2012	Fall 2013	5 Year Average	5 Year Change
Digital Forensics	Headcount	94	105	113	112	114	108	21%
	FTE Headcount	66	74	79	75	77	74	17%
Liberal Studies	Headcount	8892	8711	8717	8216	8059	8,519	-9%
	FTE Headcount	6313	6175	6137	5745	5649	6,004	-11%
College	Headcount	19047	19502	19752	18951	19065	19,263	0%
	FTE Headcount	13361	13697	13682	13106	13163	13,402	-1%

The Digital Forensics Program enrolls students with similar demographics as the Division and the College in terms of age and full-time status; the level of college readiness is similar to that of the Division; however, the proportion of students that place at college level is five percent lower within the Program compared to the College. Differences between the Program, the Division, and the College are mainly observed in the areas of gender and race/ethnicity. The Program enrolls a higher proportion of males than the Division and the College. Additionally, the

Program enrolls a higher proportion of Latino and Caucasian students and a lower proportion of African American students than the Division and the College.

Table 2: Demographics

<b>Demographics: Running 5 Year Average</b>			
	Digital Forensics	Liberal Studies	College
Female	54.1%	62.13%	63.8%
Male	44.7%	37.35%	35.8%
Unknown	1.3%	0.50%	0.4%
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Native American	0.4%	0.5%	0.4%
Asian	4.1%	5.0%	7.4%
African American	42.9%	49.4%	48.0%
Latino/a	15.6%	10.7%	10.3%
Caucasian	28.5%	24.8%	24.5%
Multi-Racial	3.6%	2.4%	2.3%
Other	0.0%	0.0%	0.2%
Unknown	4.9%	7.1%	6.9%
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16 – 21	30.4%	32.3%	32.0%
22 – 29	36.1%	35.6%	37.2%
30 – 39	18.8%	15.5%	17.0%
40 +	14.7%	15.8%	12.9%
Unknown	0.0%	0.9%	0.8%
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Full Time	33.5%	33.6%	30.8%
Part Time	66.5%	66.4%	69.2%
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All Developmental	28.2%	30.0%	29.1%
Some Developmental	49.3%	46.8%	43.3%
College Level	22.5%	23.2%	27.6%

Digital Forensics records stronger outcomes data in most areas compared to the Division and the College. The Program records a marginally higher proportion of students in good academic standing relative to the Division and the College. The retention rates in Digital Forensics are approximately 5% higher than the Division and the College. A similar proportion of students are leaving the Program because they graduate compared to those that leave the Division and the College. The Program records a marginally weaker proportion of students departing successfully in the short term and a higher proportion of students departing successfully in the long term. The program also records a lower rate of students departing unsuccessfully compared to the Division and the College. The course completion is marginally higher than that of the Division

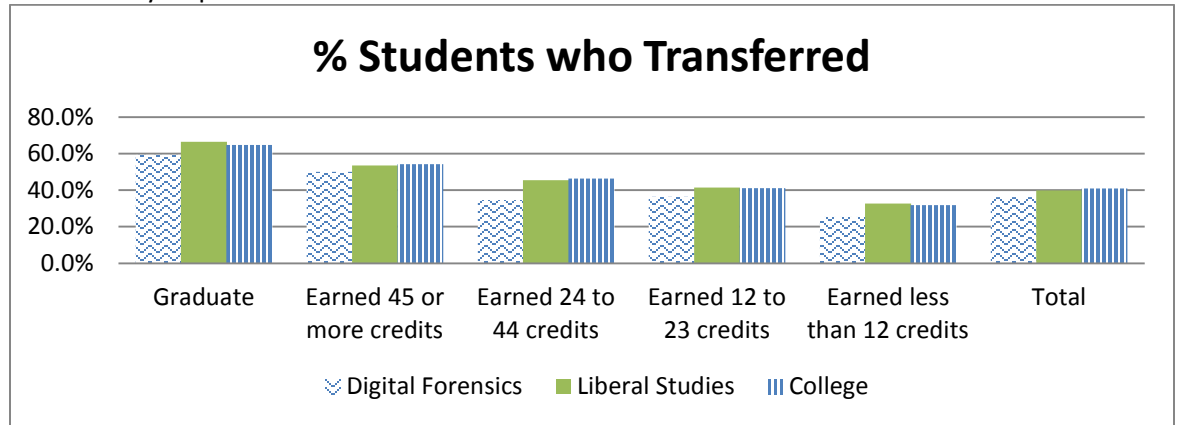
and the College, with approximately nine out of ten students successfully completing Digital Forensics courses over the last five years.

Table 3: Outcomes Data: 5 Year Averages

		Digital Forensics	Liberal Studies	College
Standing	Good Standing	87%	83.8%	84.8%
	Probation	11.3%	14.6%	13.7%
	Dropped	2.1%	1.6%	1.6%
Fall-Spring Retention	Returned/Same	70.2%	64.4%	65.8%
	Returned/Different	6.5%	6.4%	5.2%
	Graduated	1.3%	2.8%	2.2%
	Did Not Return	22.0%	26.5%	26.8%
Fall-Fall Retention	Returned/Same	41.6%	35.9%	36.7%
	Returned/Different	10.1%	9.7%	8.6%
	Graduated	9.2%	8.5%	8.4%
	Did Not Return	39.1%	45.9%	46.4%
Success at Departure	Graduated	9.8%	10.5%	10.0%
	Long Term Success	42.6%	37.3%	36.2%
	Short Term Success	12.9%	14.3%	17.2%
	Unsuccessful	34.7%	37.9%	36.6%
Course Outcomes	Course Completion	90.67%	87.4%	88.2%
	GPA	3.05	3.0	3.0

Over the past five years, a comparable proportion of students in the Digital Forensics Program transferred to another school relative to the Division and the College. Given that this program is direct-to-work, lower than average transfer rates are expected. A high transfer rate is not generally the objective of A.A.S. programs.

Figure 1: Transfer by Departure Status



Over the past 5 years, 49 Digital Forensic Degrees have been awarded. The number of degrees awarded has fluctuated over this time period; degrees awarded ranged from four to 13 per year.

Figure 2: Degrees Awarded

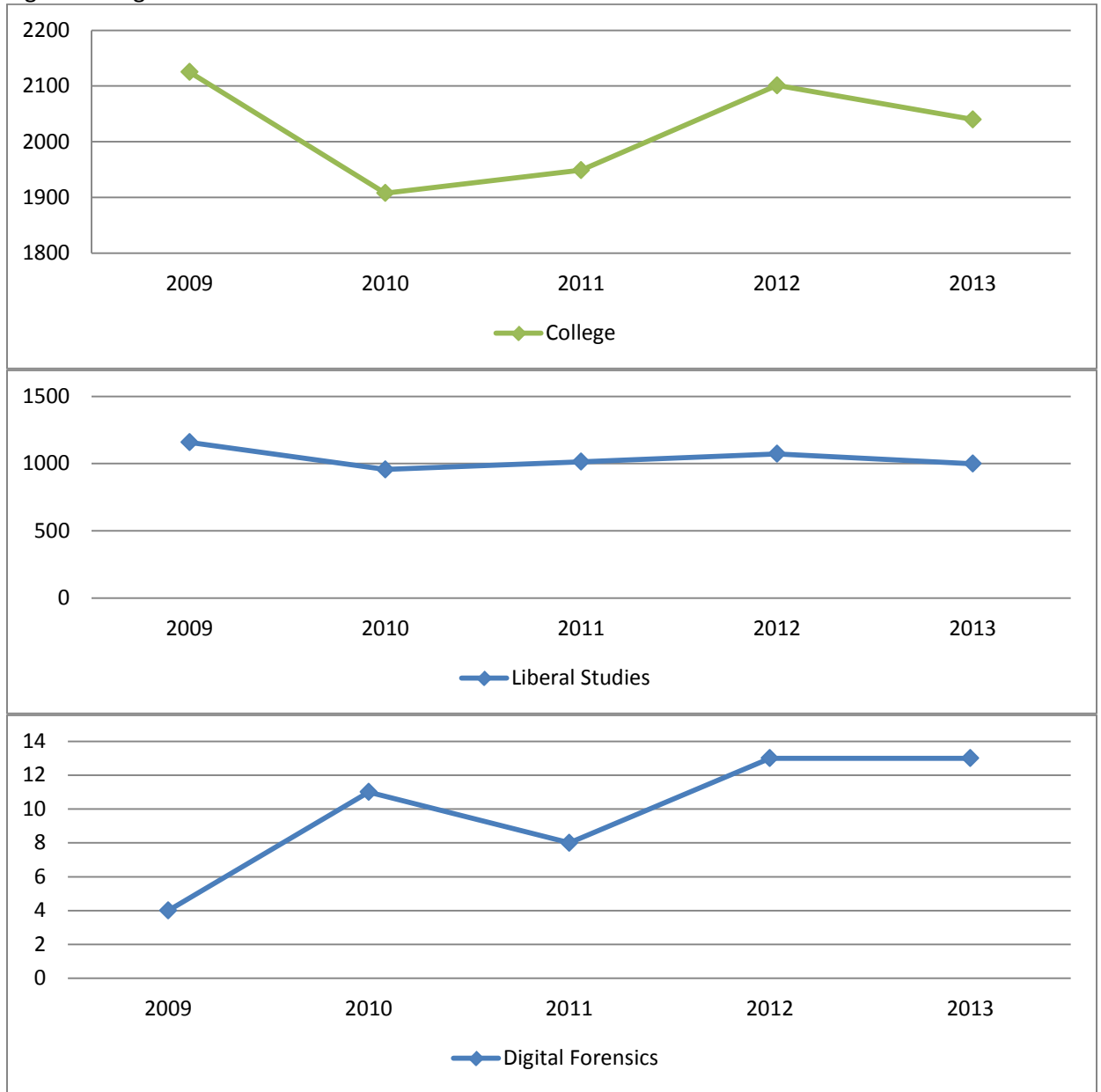


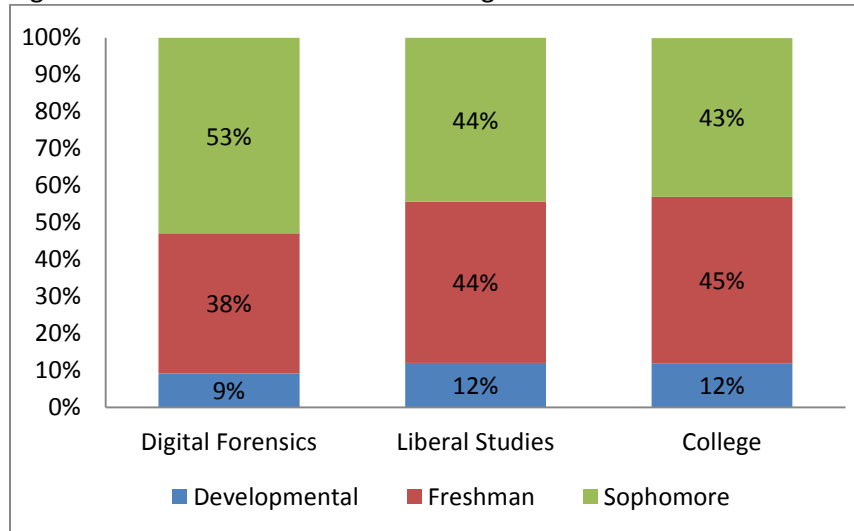
Table 4: Degrees Awarded

	2009	2010	2011	2012	2013
Digital Forensics	4	11	8	13	13
Liberal Studies	358	357	318	323	328
College	2125	1908	1949	2101	2040

The College and the Division have almost equal proportions of freshmen and sophomores. However, within the Digital Forensics Program, there are 15% more sophomores than freshmen. A possible explanation for this discrepancy could be a high percentage of students transferring into the program.



Figure 3: Distribution of Students in Program



The average GPA for graduates of the Digital Forensics Program is higher than the average GPA of graduates from the Division and the College. On average, Digital Forensics graduates have attempted 20% (14 courses) more courses than are required for graduation. Digital Forensics graduates are more efficient than graduates of the Division and the College in attempting courses and earning credit; on average, graduates of the Division and the College attempt 25% more courses than required for graduation.

Table 5: Median Statistics for Program Graduates

	Digital Forensics	Liberal Studies	College
Years to Degree	4.3	4.1	4.7
Credits Attempted	80.0	83.0	85.0
Credits Earned	66.0	66.0	68.0
Ratio of Attempted to Earned	1.21%	1.25%	1.25%
GPA	3.3	3.1	3.1

The Digital Forensics Program generally offers two to three sections in the fall and four to five sections in the spring. On average, over the last five years, the Digital Forensics Program has run sections ranging between 28 and 53% of capacity. Within the same time period the Division ran sections ranging from 80 to 84% of capacity, and College sections ranged from 83 to 86% of capacity. Faculty asserts that students push for multiple courses to run each semester so that they can complete the program more quickly.

In the fall of 2014, Computer Forensics changed its name to Digital Forensics. Consequently, all courses which were formally CF changed to DF. Following this change, only 22 students were enrolled in Digital Forensics courses, while during the five previous fall semesters, on average, approximately 40 students were enrolled in Digital Forensics/ Computer Forensics courses. Faculty report that new students assert that they were not aware of this change and therefore did not know that they should be enrolling in Digital Forensics courses. Three sections were cancelled due to low enrollment during the fall of 2014.

Table 6: Section Enrollments

		Fall 2009	Spring 2010	Fall 2010	Spring 2011	Fall 2011	Spring 2012	Fall 2012	Spring 2013	Fall 2013	Spring 2014	Fall 2014	Fall Average	Spring Average
Digital Forensics	Sections	4	3	3	4	4	4	2	4	3	5	2.00	2.80	3.96
	Avg Enrollment	13.75	16.00	13.33	10.75	11.75	19.00	12.50	10.25	12.33	12.40	11.00	12.18	12.92
	Percent Filled	38.2%	44.4%	37.0%	29.9%	32.6%	52.8%	51.0%	28%	34%	37%	31%	37%	37%
Division	Sections	282	329	1668	1664	1622	1648	1470	1446	1502	1462	1456	1544	1553
	Avg Enrollment	27.73	27.09	20.79	21.21	20.73	20.69	21.46	21.32	21.35	20.86	21.36	21.14	21.04
	Percent Filled	86.5%	84.5%	83.3%	83.6%	81.5%	81.2%	84.0%	81.8%	83.4%	80.6%	84%	83%	82%
College	Sections	2881	3096	3023	2941	2939	3007	2752	2627	2720	2599	2659	2819	2799
	Avg Enrollment	22.29	21.97	21.87	22.13	21.84	21.63	22.24	22.36	22.38	22.18	22.45	22.16	22.09
	Percent Filled	87.1%	86.4%	85.2%	85.0%	84.1%	83.1%	85.6%	84.7%	86.0%	84.0%	86%	85%	84%

**V. Learning Outcomes and Assessment**

**A. Student Learning Outcomes**

Upon completion of this Digital Forensics Program graduates will be able to:

- 1) Apply criminal investigation techniques to basic digital forensic investigations.
- 2) Conduct analyses of digital media and recover digital evidence.
- 3) Explain the concept of network intrusions and describe the techniques that intruders use to penetrate and damage networks.
- 4) Employ surveillance methods to prevent intrusions.
- 5) Uncover digital evidence of criminal activity in networks, computers, and other digital devices.

**B. Assessment**

Digital Forensics is up to date on assessment of all Program Level Student Learning Outcomes. The Program assessed the first SLO and uploaded it to SharePoint. Outcomes two through five have been assessed; however, the results are not in the standard CCP format. Once outcomes two through five have been reorganized, they will be uploaded to SharePoint. Within the first SLO, the benchmarks were met on the majority of outcome assessment strategies; however, there were four assessment strategies where the results did not meet the benchmark. Two assessment strategies utilize vague language to identify the benchmark, for example, one states that “an above average number of students should be able to achieve this learning goal.”

The Program uses a variety of assessment methods for its SLOs, often utilizing multiple assessments methods for each outcome. These include essay questions, hands on classroom assignments, hands on projects, exams, reports, classwork, homework, and employer feedback from internships. The assessment material must be updated in order to show which assessment methods feed into the program level student learning outcomes. Currently, there is only information on how the assignments feed into the course level students learning outcomes.

Table 7: Assessment Timeline

<b>Assessment Evidence Collected</b>	<b>Courses</b>
Fall 2011	CF 101, CF 201, CF 203, CF 220
Spring 2012	CF 101, CF 201, CF 203, CF 240
Fall 2012	CF 220, CF 240
Spring 2013	CF 220, CF 240
Fall 2013	CF 101, CF 201, CF 203, CF 220
Spring 2014	CF 220, CF 240
Fall 2014	CF 220, CF 240

\*Please see program map for how course learning outcomes feed into program learning outcomes.

### **C. Closing the Loop Activities**

Digital Forensics completed all assessment related activities for outcome one. The benchmark for outcome one was met. However, when the program supervisor shared the assessment results with the advisory board, the advisory board discussed how outcome one encompasses all digital devices, not just computers. Therefore modifications were made to the curriculum, which include changing the name of the program to Digital Forensics. The purpose of the change was to better reflect the current state of the field and to better prepare students for the broader field of digital forensics, and not limit students to just computer forensics.

### **D. QVIs/335s**

All QVIs and Act 335 course evaluations are up to date.

Over the past three years, the program quality score has greatly fluctuated, while the viability score has remained average. In 2014, the student learning outcomes were assessed for some courses, planned for others, and course review was planned for one course. The Program faculty reported that program level student learning outcomes were assessed; however, there was no documentation on file. In 2013, three out of five program level student learning outcomes were assessed. The quality and viability scores in 2012 were higher than average, but those scores were self-reported.

### **E. Surveys**

Surveys were sent out to graduates between 2008 and 2013 via SurveyMonkey. Twenty-one graduates responded, and their data aggregated. Seven areas showed statistically significant differences between the Digital Forensics graduates, Liberal Studies graduates, and College graduates. Digital Forensics graduates recorded lower scores in seven areas compared to Liberal Studies graduates and the general population of the College. Although most of the scores record a marginal difference, these differences are in areas that are important for students in AAS programs who will be going directly to work. For example, graduates record lower scores in improved self-reliance, working effectively with others, and improved leadership abilities, which are all areas that are important in a work environment. Program faculty should consider the importance of these low performing areas as they may be relevant to the growth of Digital Forensics students. If program faculty determine that these areas are important, they can find ways to improve the students' skillsets.

Table 8: Graduating Students Survey Results

	Program		Division		College	
	Mean	N	Mean	Sig	Mean	Sig
Enhanced Ability to Express Myself Artistically	2.05	21	2.37	*	2.22	
Developed Meaningful Career Goals	2.52	21	2.60		2.52	
Developed into a more Informed Citizen	2.52	21	2.60		2.52	
Improved Preparation for Active Participation in Community Activities	2.05	21	2.33		2.24	
Using Computing and Internet Technology	2.38	21	2.47		2.48	
Enhanced Self-Confidence	2.38	21	2.54		2.47	
Enhanced Understanding of My Own and Different Cultures	2.29	21	2.55	*	2.47	
Improved Self-Discipline	2.38	21	2.55		2.52	
Acquiring a Broad General Education	2.67	21	2.61		2.58	
Developed Interpersonal Skills and the Ability to Relate to Others	2.43	21	2.62		2.52	
Improved Leadership Abilities	2.05	21	2.51	***	2.40	**
Solving Numerical Problems	2.24	21	2.26		2.33	
Working Effectively with Others	2.35	20	2.61	*	2.51	
Preparation for Continued Personal and Intellectual Growth after College	2.57	21	2.66		2.58	
Understanding People of Other Racial and Ethnic Heritage	2.19	21	2.54	**	2.50	*
Improved Self-Reliance	2.29	21	2.57	*	2.52	
Speaking Clearly and Effectively	2.38	21	2.56		2.49	
Thinking Critically and Analytically	2.43	21	2.63		2.59	
Contributing to the Welfare of my Community	1.95	21	2.28	*	2.23	
Writing Clearly and Effectively	2.52	21	2.60		2.58	

\* p < .1, \*\* p < .05, \*\*\* p < .01

\*Scale for the survey is: 0: No progress; 1: Little progress; 2: Some progress; 3: Considerable progress.

#### F. Advisory Committee

Digital Forensics has an active advisory committee that meets regularly. It consists of individuals from local agencies, corporations, and consulting groups, as well as faculty from local colleges and transfer institutions. Recent discussions of the AC have revolved around local partnerships with high schools and associations, the CF Google site established to help facilitate communication and job information, ENCASE software and HardCopy III forensic duplication devices, assessment, external accreditation, and development of an assessment plan, improving writing and public speaking skills of students, incorporating simulation into

the curriculum, overcoming internship challenges, and prescreening students for criminal background checks. The AC discussed two potential certificate programs (Digital Forensics and E-Discovery). During the assessment process, faculty became aware of areas that need attention, and they have plans to address those areas.

**VI. Resources**

The program uses Perkins Funding for software, hardware, release time for program director, and the classroom. The Program requires a dedicated room with computers off the network so that students are able to practice network intrusion and exploiting system vulnerabilities. The program uses Access Data Forensic Toolkit Suite (ADFTK) software, which is renewed every other year. The Program requires no additional special resources at this time.

**VII. Demand**

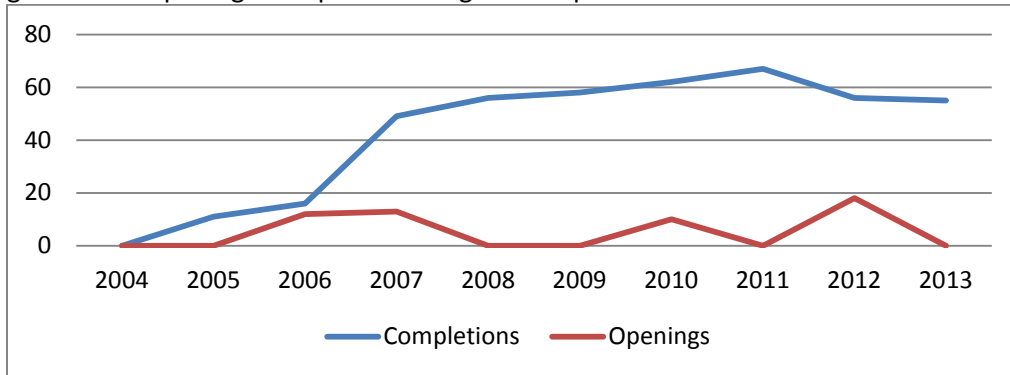
CCP’s Digital Forensics Program trains students to enter a variety of occupations. Network and computer systems administrators, information security analysts, and forensic science technicians are common occupations entered into by the Program’s graduates. Nationwide, network and computer systems administrators, information security analysts, and forensic science technicians are all likely to experience growth from 2014 to 2024 (14%, 33%, and 8.3% respectively); locally, however, the growth in these areas is lower, with only information security analyst occupations growing at a rate above the nationwide average of 11%. While these jobs tend to employ individuals who have some form of post-secondary education, with very few pursuing graduate degrees.

Table 9: Digital Forensics Occupation Outlook

	Job Outlook (Local-MSA)	Salary (National Average)	Nationwide Educational Attainment	
	2014-2024	Yearly	Associate's degree	Bachelor's degree
Network & Computer Systems Administrators	6.70%	\$77,880	15.40%	38.90%
Information Security Analysts	24.00%	\$96,220	14.40%	34.00%
Forensic Science Technicians	2.30%	\$45,460	12.00%	30.90%

Locally, two colleges in the area offer a bachelor’s degree in Cyber/Computer Forensics and Counterterrorism, Financial Forensics and Fraud Investigation, or Forensic Science and Technology. No other local colleges offer an associate’s degree and four colleges offer an advanced degree. Commonly, students transfer to Chestnut Hill College, Drexel University, Champlain College, and Bloomsburg University. The Program is discussing articulation agreements with each of these institutions.

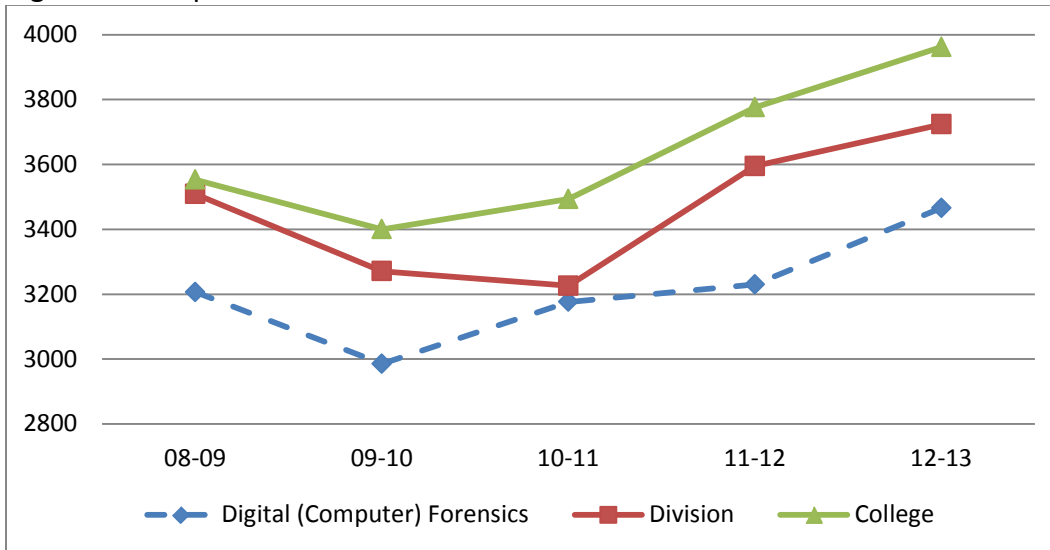
Figure 4: Job Openings Compared to Degree Completions



**VIII. Operating Cost**

The costs for the Digital Forensics Program have been lower than the median costs for both the College and the Division. All costs have risen over the past 3 years.

Figure 5: Cost per Full-Time Enrolled Student



**IX. Findings & Recommendations**

1. Undertake general program management activities
  - a. Create a program management plan

This audit highlights the need for a Program Management Plan to deal with internal and external program awareness. The internal aspect of this plan will address dissemination of information among current students including, but not limited to, the creation, implementation, and publication of a consistent schedule of course offerings. The external plan will address communication and promotion of the program to admissions advisors for the purpose of disseminating accurate and pertinent information to potential students.

Timeline: End of summer 2015

Persons Responsible: Program Director

Deliverables: Schedule of Course Offerings and Communication Plan

- b. Determine optimal program size

Digital Forensics must determine their ideal program size in order to set enrollment goals. Ideal program size can be determined by researching similar programs and obtaining data on enrollment, faculty, and scope of programs, and then benchmarking these programs with CCP's program.

Timeline: spring 2015

Persons Responsible: Program Director

Deliverables: Enrollment Goals Report

c. Establish internal course linkages

The Program must identify ways to either increase enrollment in Digital Forensics courses or decrease the number of courses offered. Strategies may include: working with other curricula to offer Digital Forensics courses as directed electives, cross listing Digital Forensics courses, or eliminating Digital Forensics courses in favor of courses from other programs.

Timeline: Plan Summer 2015, Implementation Fall 2015

Persons Responsible: Program Director

Deliverables: Course Goals Plan, Modify Course Catalogue

d. Identify where the students go at departure

A high proportion of students depart with long-term success. Research should be undertaken to determine whether these students enroll in the program to improve their chances of transfer, to increase their employment chances after graduation, or gain skills for a current job.

Timeline: Fall 2015

Persons Responsible: Program Director, Assistant Dean of Liberal Studies

Deliverables: Create student departure survey

2. Develop articulation agreements with local colleges and universities

Approximately 40% of the students that leave the Program transfer. Emphasis should be placed on ensuring that CCP's curriculum aligns with the curriculum of local institutions which CCP students commonly transfer to.

Timeline: Spring 2015

Persons Responsible: Program Director, Assistant Dean of Liberal Studies

Deliverables: Develop articulation agreements and update CCP's Transfer Agreement website.

3. Assessment

The assessments must be re-organized into the standard CCP assessment format and then loaded into SharePoint. Certain benchmarks must be rewritten to provide more specificity. Action plans should be developed regardless of whether the goals were achieved. Faculty needs training on assessment through the CAT Team.

Timeline: Summer 2015

Persons Responsible: Digital Forensics Faculty

Deliverables: SharePoint must include all five outcomes



**COMMUNITY COLLEGE OF PHILADELPHIA**  
**ACADEMIC AFFAIRS OFFICE**

**Summary Recommendations to Discontinue Certificates**

**Recommendation to close Biomedical Technician Training Certificate:**

The creation and implementation of the new Biology degree enables the Biomedical Technician Training Program to stay as it currently is with the first year's summer program of training (an orientation) and research experience (laboratory practicum) with students taking the BTT 101 course for college credit, and a second year's summer internship program. Thus, there is no longer a need for this certificate.

**Recommendation to close Biotechnology Proficiency Certificate:**

Attempts to run the first Biotechnology course (BIOL 255) have not been successful over a number of semesters. The course has been canceled each time due to low enrollment (e.g. less than or equal to 5 students). In addition, attempts to establish a defined industry relationship so that students can gain employment upon completion of the certificate have not been successful. Factors such as downsizing and the request for a higher level credential (e.g. Associate's or Bachelor's Degree) have also impacted the ability to market this certificate to a particular Bio Pharma/Bio Tech industry. Therefore, the better solution to offering the Biotechnology courses is to close the certificate and incorporate the two courses into the current Biology Degree as elective courses.

**Recommendation to close Academic Certificate in Justice:**

The findings of the most recent audit of the Justice Program and Academic Certificate and the recommendations of the Advisory Committee, both in October 2014, have led to this recommendation to close the certificate. The audit indicates that in 2014, all students who received the Academic Certificate in Justice also received a Justice Degree at the same time or received the degree prior to receiving the certificate. This issue was raised at the meeting of the Advisory Committee, who reviewed enrollment and graduation numbers and agreed that students are not using the certificate as originally envisioned and that there is limited value in the certificate. In addition, the audit raised the question of whether the certificate alone contributes to employment opportunities. The members of the Advisory Committee, many of whom work in law enforcement and related fields, concur that there is no evidence that earning the certificate currently does so.

**Recommendation to Close the Academic Certificate in Justice**

**Proposed by:**

Tom Quinn, B.S., M.A.  
Justice Program Coordinator

**February 10, 2015**

**Effective Semester:** Fall 2015

## **Recommendation to Close the Academic Certificate in Justice**

### **History of the Academic Certificate**

Since 1971, students at the College could earn both an associate's degree and an Academic Certificate in Justice (formerly Law Enforcement). The certificate was created as an alternative entry into the program for those not ready to commit to an associate's degree and to educate students in a range of skills that would help them secure employment and/or advance in their careers. Students who completed the Academic Certificate in Justice were expected to achieve these outcomes:

- Demonstrate an understanding of basic concepts and principles of criminal justice.
- Demonstrate the skills and knowledge necessary for employment in entry level criminal justice positions such as police officer, corrections officer or private security manager.
- Demonstrate an understanding of and commitment to the values of the criminal justice profession.

### **Rationale for Closing the Academic Certificate in Justice**

The findings of the most recent audit of the Justice Program and Academic Certificate and the recommendations of the Advisory Committee, both in October 2014, have led to this recommendation to close the certificate. The audit indicates that in 2014, all students who received the Academic Certificate in Justice also received a Justice Degree at the same time or received the degree prior to receiving the certificate. This issue was raised at the meeting of the Advisory Committee, who reviewed enrollment and graduation numbers and agreed that students are not using the certificate as originally envisioned and that there is limited value in the certificate. The Advisory Committee supports the closure of the Academic Certificate. In addition, the audit questioned whether the certificate alone contributes to employment opportunities, and the members of the Advisory Committee, many of whom work in law enforcement and related fields, concur that there is no evidence that earning the certificate currently does so. For instance, the Philadelphia Police Department now requires a minimum of 60 college credits to apply to be a police officer recruit. A wide majority of entry-level professional jobs in law enforcement, such as probation officer, parole officer, or FBI agent, require a bachelor's degree. Please see the **Appendix** for more information.

### **Process for Closure**

Students who are currently enrolled in the Academic Certificate are also enrolled in the Justice degree, and none of the courses in the Academic Certificate will be eliminated. Students will be notified of the certificate's closure, as is consistent with the College's policies and procedures on program termination, and appropriate College offices and personnel will be notified.

### **Alternative Pathways for Students**

Students who are interested in the field of Justice may pursue the Justice degree.

## Appendix

### Excerpts from the October 2014 Audit

Over the past five years, the number of degrees awarded within the Justice Program, the College, and the Liberal Studies division have fluctuated in tandem. The amount of degrees awarded increased in 2009, decreased in 2010, and slowly peaked again by 2012. However, in 2008, 2009, and 2010 a similar number of Justice Certificates and Justice Degrees were awarded even though enrollment for the Certificate Program was lower than enrollment for the Degree Program. (Figure 2, Table 4) Investigation indicated that in 2013 and 2014 all students who received the Justice certificate also received the Justice degree.

Figure 2: Degrees Awarded

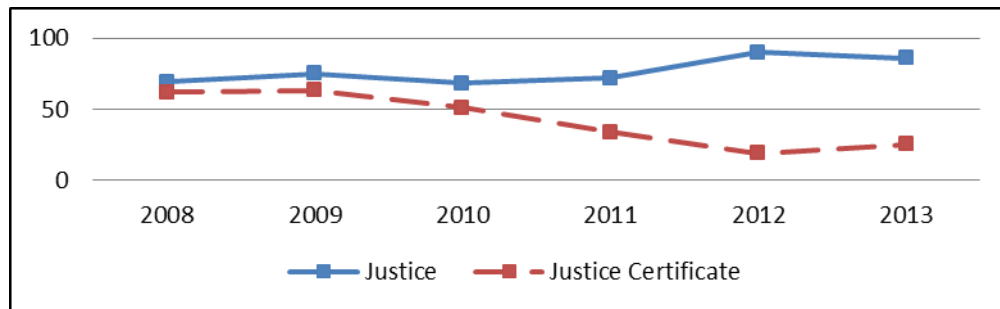


Table 4: Degrees Awarded

	2008	2009	2010	2011	2012	2013
College	1984	2125	1908	1949	2101	2039
Liberal Studies	1079	1158	956	1014	1073	999
Justice	69	75	68	72	90	86
Justice Certificate	62	63	51	34	19	25

### IX. Findings and Recommendations

1. Evaluate the merits of the Justice Certificate and assess whether the certificate provides value to the holder.

In 2014, all students who received a Justice Certificate also received a Justice Degree at the same time or prior to receiving the certificate. If students are receiving the degree at the same time or before the certificate, they are not using this Certificate as a stepping stone to the degree. Additionally, there is some question as to whether a certificate alone contributes to employment opportunities—faculty, the advisory committee and former certificate students should be consulted.

Timeline: Report completed by Spring 2015.

Persons Responsible: Program Director, Advisory Committee.

## Excerpt from the Justice Program Advisory Committee Notes (10/21/2014)

### Program Audit

A program audit is nearly complete and will be presented to the Student Outcomes Committee of the Board of Trustees in early November, then to the full Board of Trustees. The College's Office of Academic Assessment and Evaluation conducts the audit, with input from the faculty. The audit is an objective look at enrollments, academic performance, graduation rates, employment, and program costs. Tom indicated that an issue being addressed in the audit is the need for the Academic Certificate program. It was originally intended as a stepping stone for students to earn a credential, potentially secure employment and then continue on to complete the degree program.

### Philadelphia Police Department Education and/or Experience Requirements

There are four options for educational and experiential status effective January 2012 for applying to be a police officer recruit or police officer I in the Philadelphia Police Department.

#### Option 1: EDUCATION

Sixty (60) college credits with an overall grade point average of at least 2.0 at an accredited college or university.

#### Option 2: EDUCATION AND EXPERIENCE

Education equivalent to completion of standard high school AND six months of full time, active military service with an honorable discharge.

#### Option 3: EDUCATION AND EXPERIENCE/CERTIFICATION

One year of full time employment as a commonwealth or state certified Law Enforcement Officer which has been within the three year period prior to the closing date of applications. Please refer to the current announcement for specific dates.

CERTIFICATION: Possession of a Commonwealth or State Law Enforcement Officers' Certification (this position is now open to candidates from any other state in the nation)

#### Option 4: EDUCATION AND EXPERIENCE

Education equivalent to completion of standard high school AND successful completion of the Philadelphia Police Explorers Cadet Program, which shall have included a minimum of two years' service with the Philadelphia Police Explorers Cadet Program, including 672 hours training offered by the Philadelphia Police Department and an additional 298 hours of community service or external training.

**SOURCE:** <https://www.phillypolice.com/careers/requirements/index.html>



**Quick Facts: Probation Officers and Correctional Treatment Specialists**

<a href="#">2012 Median Pay</a>	\$48,190 per year \$23.17 per hour
<a href="#">Entry-Level Education</a>	Bachelor's degree
<a href="#">Work Experience in a Related Occupation</a>	None
<a href="#">On-the-job Training</a>	Short-term on-the-job training
<a href="#">Number of Jobs, 2012</a>	90,300
<a href="#">Job Outlook, 2012-22</a>	-1% (Little or no change)
<a href="#">Employment Change, 2012-22</a>	-900

**From the  
Bureau of  
Labor  
Statistics  
Occupational  
Outlook  
Handbook**

<http://www.bls.gov/ooh/community-and-social-service/probation-officers-and-correctional-treatment-specialists.htm>

**Proposal to Eliminate the Biotechnology Proficiency Certificate**

**Effective: Fall 2015**

## **Biotechnology Proficiency Certificate**

### **Description:**

Biotechnology is an exciting and rapidly changing high technology field employing specially trained individuals. Laboratories in the biotechnology industry rely on technicians who are proficient at common tasks such as solution preparation, electrophoresis, microbial growth, and column chromatography. The Biotechnology Proficiency Certificate prepares student to meet biotechnology industry needs in the area of bioprocessing and fermentation. A strong industry need was also identified in the area of quality control and quality assurance, which is also addressed by this certificate. The curriculum has been reviewed and validated by several biotechnology industries thus providing students with the knowledge and training to seek employment in biotechnology areas such as pharmaceutical manufacturing, research, medical and testing laboratories, biotechnology companies and agricultural industries. Two options exist for a student to obtain this proficiency certificate. The student may:

- take only the courses leading to the certificate.
- take the courses leading to the certificate as part of the Applied Science and Engineering Technology Associate Degree Program.

### **Student Learning Outcomes:**

Upon completion of the Biotechnology Proficiency Certificate the student will be able to:

- Apply the practical application of basic biotechnology laboratory skills.
- Understand the theory underlying the performance and application of these laboratory techniques.
- Develop a working knowledge of industry regulations and guidelines, such as standards for good laboratory practice (GLP), biosafety, and personal safety.
- Gain a broad overview of the biotechnology industry, and understand the scientific principles and basic practical skills employed in the manufacture of biological materials via the fermentation process.

### **Entrance Requirements:**

This certificate is open to interested students. New students are normally required to take the College's placement test at their time of entry. Students who are identified as needing developmental course work must satisfactorily complete the appropriate English and mathematics courses as part of the certificate.



**Courses:**

<b>Course Number</b>	<b>Course Title</b>	<b>Prerequisites</b>	<b>Credits</b>
CHEM 121	College Chemistry I	CHEM 110, MATH 118	4
BIOL 123	Cellular and Molecular Biology	CHEM 121 or CHEM 110	4
BIOL 211	Genetics	BIOL 106 or BIOL 107 or BIOL 123	4
BIOL 241	Principles of Microbiology	BIOL 106 or BIOL 107 or BIOL 109 or BIOL 123	4
BIOL 255	Biotechnology I	BIOL 241	4
BIOL 256	Biotechnology II	BIOL 255	4
CHEM 122	College Chemistry II	CHEM 121	4
		<b>Total Credits</b>	<b>28</b>

**Successful Completion:**

Successful completion of the program requires a C or better in each of the courses listed above. In order to achieve a C or better and thus demonstrate competency students must complete exams, writing assignments, projects, and participate in class activities.

**Requested Change**

Faculty in the Biology Department have approved the elimination of the Biotechnology Proficiency Certificate.

**Rationale for Elimination of the Proficiency Certificate**

Attempts to run the first Biotechnology course (BIOL 255) over a number of semesters have not been successful. The course has been canceled each time due to low enrollment (e.g. less than or equal to 5 students). In addition, attempts to establish a defined industry relationship so that students can gain employment upon completion of the certificate have not been successful. Factors such as downsizing and the request for a higher level credential (e.g. Associate's or Bachelor's Degree) have also impacted the ability to market this certificate to a particular Bio Pharma/Bio Tech industry. Therefore, the better solution to offering the Biotechnology courses is to close the certificate and incorporate the two courses into the current Biology Degree as elective courses.

**Signature Approval for Changes Described in the Document**

	<b>Signature</b>	<b>Date</b>
<b>Department Head</b>	_____	_____
<b>Dean</b>	_____	_____
<b>Curriculum Development Coordinator</b>	_____	_____
<b>Vice President of Academic Affairs</b>	_____	_____

**Proposal to Eliminate the Biomedical Technician Proficiency Certificate**

**Effective: Summer 2015**

## **Biomedical Technician Proficiency Certificate**

### **Description:**

In conjunction with the Wistar Institute, a national cancer research center, the College offers the Biomedical Technician Training Program. This program provides the only on-site professional biomedical research training in the Philadelphia region for post-high school, undergraduate students and for persons making a career change to become a biomedical research laboratory assistant. At Wistar and affiliate institutions, students selected for the BTT program receive an orientation to biomedical research technologies from mentors at these institutions. Laboratory Practicum training also takes place at the basic science research institutions, while internships take place in research institutions and at regional biotech and biopharmaceutical companies during the summer sessions. Approximately 50% of those who complete the 2-year BTT program obtain positions as biomedical research assistants within 6 months. Two options exist for a student to obtain this certificate. The student may:

1. Take only the courses leading to the certificate.
2. Take the courses leading to the certificate as part of the Applied Science and Engineering Technology Associate Degree Program.

### **Student Learning Outcomes:**

Upon completion of the Biomedical Technician Proficiency Certificate the student will be able to:

- Build upon the knowledge and skills acquired from other science courses.
- Demonstrate the ability to work safely, effectively, and efficiently with living cells and the proteins and genetic material extracted from them.
- Understand the role of research technicians in the laboratory.
- Enter the job-market as a skilled, competent biomedical laboratory research assistant.

### **Entrance Requirements:**

The Biomedical Technician Proficiency Certificate is a select proficiency certificate. To apply for the certificate the student must have completed a minimum of 12 credits at an accredited college or university with a GPA of 2.5 or better. Students must have completed English 101 and

have successfully completed an in-person interview with the BTTP Academic Coordinator and the BTTP Program Director from the Wistar Institute.

Biomedical Technician Proficiency Certificate Course Sequence

Course Number	Course Title	Prerequisites	Credits
<a href="#">ENGL 101</a>	English Composition		3
<a href="#">MATH 118</a>	Intermediate Algebra (or Placement in <a href="#">MATH 161</a> or higher)		3
<a href="#">CHEM 110</a> or <a href="#">CHEM 121</a>	Introductory Chemistry or College Chemistry	<a href="#">MATH 118</a> placement <a href="#">ENGL 101</a> ready	4
<a href="#">BIOL 123</a>	Cellular and Molecular Biology	<a href="#">CHEM 121</a> or <a href="#">CHEM 110</a>	4
<a href="#">BTT 100</a>	Introduction to Biomedical Technology	<a href="#">BIOL 123</a> , <a href="#">MATH 118</a> or higher, <a href="#">ENGL 101</a>	1
<a href="#">BTT 101</a>	Biomedical Technician Training	<a href="#">BTT 100</a>	2
<a href="#">BTT 201</a>	Biomedical Technician Training	<a href="#">BTT 101</a>	4
<b>Total Credits: 21</b>			

**Successful Completion:**

Successful completion of the program requires a "C" grade or better in each of the courses listed above. In order to receive a "C" grade or better and thus demonstrate competency, students must complete assignments, exams and participate in class activities.

**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.

**Gainful Employment Information**

Gainful employment information is intended to provide students with better information about the effectiveness of college programs in preparing students for careers. Information provided includes estimated program costs and time needed to complete the program, financing options and related careers.

**Requested Change:**

Following a discussion with Dr. William Wunner (BTT Program Director), Dr. Linda Powell (Professor and Chair, Biology Department) and Dr. Kristy Shuda McGuire (BTT Academic Coordinator and Assistant Professor, Biology Department), it was determined that current needs for the program do not necessitate a proficiency certificate, and the request is to eliminate the certificate effective Summer 2015.

**Rationale for the Suggested Change**

Prior to the development of the new Biology degree, a proficiency certificate was seen as the best pathway to providing future sustainability for the Biomedical Technician Training Program. At the time of the creation of the BTT Proficiency Certificate, the only degree program that would accept the existing 3 credit course (BTT 101) was the Culture, Science and Technology Degree program. Therefore, if students were enrolled in another program (e.g. Science, Chemical Technology) and were accepted into the BTT Program, their BTT courses in all likelihood would not count towards graduation.

As the BTT courses for the proficiency certificate were developed and discussions continued with Dr. Wunner on how to successfully implement the new Proficiency Certificate, a number of concerns and issues were raised. Thus, only the BTT 100 course was approved. BTT 101 (revised version of the current BTT 101) and BTT 201 were put on hold until the issues could be

resolved. These issues centered on who could teach the courses and how would the financial aspects of the program be fairly aligned. For example, currently students are prepared for the BTT 101 course by taking a summer training called “Orientation to Biomedical Technology,” which was developed and is currently led by Dr. Wunner. The BTT 101 practicum experience called “Laboratory Practicum” was developed by Dr. Wunner, and both he and Dr. Shuda McGuire supervise the students in their assigned laboratories at The Wistar Institute and affiliated training sites.

Financial issues centered on the fact that Wistar currently provides the major financial support for the BTT Program. Students in the program also receive a small stipend over the duration of the program from Wistar funds. Thus, the full implementation of the Biomedical Technician Training Proficiency certificate would necessitate a more involved discussion of how funds would be allocated in the future if the College were to begin to collect tuition for all three BTT courses instead of one.

The creation and implementation of the Biology Degree provides an expedient solution to the concerns listed above and enables the Biomedical Technician Training Program to stay as it currently is with the first year’s summer program of training (an orientation) and research experience (laboratory practicum) with students taking the BTT 101 course for college credit, and a second year’s summer internship program. The value in keeping the BTT Program as it is currently is as follows:

- 1) The BTT 101 course can be included in the Biology Degree program as a Biology Elective. This degree is a much better fit for students pursuing the BTT Program.
- 2) The Academic Coordinator of the program, currently Dr. Shuda McGuire, can be listed as the Faculty of Record for BTT 101 since she oversees the students at their research training sites during the first and second summer research experiences.
- 3) The current model provides students with two possible pathways upon completion of the program. The program currently has a high rate of success in finding employment for students and this is expected to continue. Students wishing to transfer to a four-year college or university are better served by having finished their A.S. degree in Biology.
- 4) Current financial supports related to both Wistar and the College can continue to operate as they have done in the past.
- 5) Students in other curricula (e.g. Science, ASET, Liberal Arts) would be eligible to participate in the BTT Program without having to take additional courses stated in the Proficiency Certificate.

**Signature Approval for Changes Described in the Document**

	<b>Signature</b>	<b>Date</b>
<b>Department Head</b>	_____	_____
<b>Dean</b>	_____	_____
<b>Curriculum Development Coordinator</b>	_____	_____
<b>Vice President of Academic Affairs</b>	_____	_____



# Community College of Philadelphia

*The Path to Possibilities.*

## Business *and* Technology Division

### Accounting AAS Degree Audit Update Fall 2014

The Accounting AAS Degree program was presented to the Student Outcomes Committee of the Board of Trustees in February 2014. The Student Outcomes Committee recommended that the Board of Trustees accept the Accounting program audit and identified two action items for the Accounting faculty.

1. The deadline for decisions about the future of the program will be completed by the end of Fall 2014. Changes will be implemented by Spring 2015.
2. The program must, by Fall 2014, demonstrate that they are communicating to Accounting students upon entry into the College about their options for transfer and workforce entry and advise them about the best programmatic options for them at that time.

#### **Action #1**

In response to Action #1, the Accounting faculty conclude the AAS in Accounting degree should continue in the future because it is a transferable degree either in total or for a majority of the courses depending on the transfer institution. In addition, the degree provides students with a credential and prepares graduates with the skills required to obtain entry-level employment in the field. Further, the Accounting AAS Degree is more comprehensive and students acquire more knowledge about the discipline than the Accounting Paraprofessional Proficiency Certificate.

At this time, no changes to the curriculum or the degree program are planned. However, the faculty will continue to monitor enrollment using the annual Quality and Viability Indicators (QVI) reports, follow trends in the field with the input of the Advisory Committee, and continue to communicate with the partner transfer institutions to determine the viability of continuing the Accounting AAS Degree program.

#### **Action #2**

In response to Action-Item #2, the Accounting faculty developed and implemented the following initiatives during the Fall 2014 semester.

1. A case load advising system was established whereby each full-time Accounting faculty member was assigned approximately thirty students enrolled in the Accounting AAS degree program. (Appendix A.)
2. Faculty held information sessions for Accounting program majors on September 29 and September 30, 2014. (Appendix B.) During the sessions faculty advised students about career and transfer opportunities for students who are pursuing an AAS in Accounting degree. Information was provided regarding the Accounting Paraprofessional

Proficiency Certificate, the Business AA Degree, and the educational and experience requirements to sit for the CPA exam and become licensed in Pennsylvania was also presented. (Appendix C.)

3. Faculty prepared a welcome letter that was sent to all new Accounting majors. The letter explained the Accounting program and the potential career and transfer opportunities available (Appendix D.)
4. Faculty prepared a flyer that explains the various degree options available for students who are interested in pursuing a career in Accounting (Appendix E.)
5. Faculty converted two courses for distance education offering--ACCT 206 Auditing and ACCT 215 Nonprofit Accounting--to give students more flexibility in their course scheduling.
6. Activities related to student recruitment and retention that are outlined in the Accounting Program Management Plan were accomplished and included: participating in the Majors Fairs and Open House; utilizing MyDegreePath for advising students and to check on their progress; and informing students of tutoring resources available through the Learning Lab and online resources available through WileyPLus and MyAccountingLab.

The faculty will continue to implement the above initiatives to communicate with students who are Accounting majors. In addition, below are the ongoing actions planned by the Accounting faculty beginning the Spring 2015 Semester to demonstrate they are communicating with students about the options that are available to them.

1. In the Spring 2015 semester, faculty intend to survey Accounting students to gain a better understanding of students' current employment status and career plans in Accounting.
2. In the Spring 2015 semester, faculty will continue to host information sessions for Accounting students, continue the case load advising system, and send the welcome letter to Accounting students explaining career and transfer opportunities. All these items are included on the Program Management Plan.

# APPENDICES

Dear Accounting Major:

We are trying to connect with all students who are registered as Accounting majors to make sure they have the proper support in order to accomplish their educational goals. The Accounting Program faculty are concerned because, according to the College's records, you have not taken any Accounting courses.

We are assigning all students to Accounting Faculty/Advisors to help you with the various questions you may have throughout your academic career at Community College of Philadelphia. Each faculty member is prepared to help you with registration/enrollment questions, career advising as well as transfer questions. Your advisor will help you identify courses for next semester and will help you reach your goals in a timely and efficient manner. They will also discuss your career goals with you and the best path for you to reach those goals whether it is obtaining a job after graduation or transferring.

If you are interested in transfer, the advisor will assist you by discussing with you where you plan to transfer. Keep in mind that not all courses transfer to every institution, which is why you should meet with an advisor from your academic program. Your advisor will discuss various paths with you depending on your goals. Please contact your advisor if you have any questions.

Your Advisor is:

Alan Davis

[Adavis@ccp.edu](mailto:Adavis@ccp.edu)

215-751-8711

If you need additional help please feel free to contact:

Cory Ng – Program Supervisor

[cng@ccp.edu](mailto:cng@ccp.edu)

215-496-9339

or

Richard Saxton – Department Head

[rsaxton@ccp.edu](mailto:rsaxton@ccp.edu)

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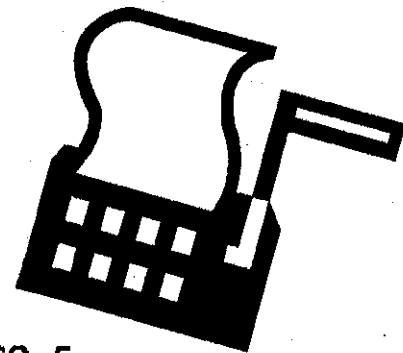
Are you interested in a career in accounting? If so, please join accounting faculty for an information session to learn about various degree programs and transfer opportunities available at the College.

The purpose of this information session is to make sure that your current degree program is aligned with your career and educational goals.

**When:** Monday, September 29, 2014 &  
Tuesday, September 30, 2014

**Time:** 3:30 - 4:30 PM

**Where:** Center for Business and Industry, C2-5



Division of Academic Programs, Department of  
Transfer and Business, and  
Technology  
Community College of Philadelphia

## Accounting Majors Information Session

September 29, 2014  
 Presenter: Cory Ng, CPA, CGMA  
 Assistant Professor & Program Director

## AAS in Accounting

- Students are prepared for a variety of careers such as:
  - Junior accountant
  - accounting trainee
  - accounts receivable or accounts payable technician
  - tax examiner.

## AAS in Accounting

- 62 credits and 2.0 average for graduation
- No assurance that all credits will transfer unless you attend one of the following:
 

Chestnut Hill College	Philadelphia University
Cheyney University	Rosemont College
Kaplan University	Strayer University
LaSalle University	
Philadelphia University	

## Accounting Paraprofessional Proficiency Certificate

- 16 credit hour career program / all credits transfer to AAS in Accounting
- ACCT 101 (financial accounting)
- ENGL 101 (English composition)
- ACCT 102 (managerial accounting)
- ACCT 103 (microcomputers in accounting)
- ACCT 208 (tax accounting) or ACCT 215 (nonprofit accounting)

## AA in Business Administration

- Specifically designed to prepare students to transfer to Association to Advance Collegiate Schools of Business (AACSB)
  - Temple University
  - Drexel University
  - St. Josephs University
  - PA State System of Higher Education Schools

## AA in Business Administration

- 61 credits; earning a C or better in all courses
- Math 162 & 171; or Math 171 & 172
- Complete Change of Curriculum Form in you need to change from AAS Accounting to AA Business Administration

### Becoming a CPA in PA

- Graduate with a bachelor's degree
- Pass CPA Exam (four parts)
- Obtain 150 semester credits
- Obtain work experience (1,600 hours)

### Becoming a CPA in PA

- Eligibility to sit for the CPA Exam
  - Received a bachelor's degree or higher from an accredited college or university
  - Completed at least 24 semester credits in accounting subjects, including accounting and auditing, business law, finance, or tax subjects sanctioned by the State Board of Accountancy
  - Candidates can sit for the exam with less than 150 credits, but will be required to obtain 150 credits before they are eligible to apply for licensure

### Becoming a CPA in PA

- Qualifying work experience in government, industry, academia or public practice within 5 years of applying:
  - Accounting
  - Attest
  - Compilation
  - Consulting
  - Financial Advisory
  - Management Advisory
  - Tax

### Questions?

Contact Information:

Email: [cng@ccp.edu](mailto:cng@ccp.edu)

Office: B2-24D

Hello Accounting Student, and welcome to Community College of Philadelphia!

We hope your semester is off to a wonderful start and you are acclimating well to CCP.

Academic records indicate that you have enrolled in the Accounting program at the College this semester. We're writing you to give you information about the Accounting program offer by the Department of Business Administration, and some additional information you may want to consider.

Upon your successful completion of the Accounting program, you will earn an A.A.S. (associate in applied science) degree in Accounting. For your information, reference, and planning, the requirements of the Accounting program are attached, and are available online at:

<http://ccp.edu/college-catalog/degree-and-certificate-programs/associate-applied-science-aas/accounting>.

A.A.S. programs are career track programs. Although you will be able to transfer many of the program credits to four-year colleges, there's no assurance that all of your credits will universally transfer unless you transfer to one of the following schools: Chestnut Hill College, Cheyney University, Kaplan University, La Salle University, Peirce College, Philadelphia University, Rosemont College, Strayer University, and Western Governors University, upon completion of the program. The primary intent of an A.A.S. program is to prepare you to enter the workforce in the area of your specialization, not preparation for transfer. Employment opportunities do exist for those who complete the requirements of the Accounting Program.

If your intent is to continue your education at a four-year college or university such as Temple University, St. Joseph's University, Holy Family University, or one of the state system of higher education schools, you may be better served by the Business Administration program at the College. The Business Administration program is an A.A. (Associate in Arts) program that has been designed to be the equivalent of the first two years of education at many four-year colleges and universities, including their emphasis on liberal arts and higher level Math courses. As such, most colleges and universities accept the program in-full as the equivalent of their first two years. For your information, the requirements of the Business Administration program are also attached, and can also found online at:

<http://ccp.edu/college-catalog/degree-and-certificate-programs/associate-arts-aa/business-administration>.

The Department of Business Administration also offers an Accounting Paraprofessional Proficiency Certificate the those who desired a credential in Accounting while pursuing a non-Accounting degree program. As an example, to earn the Business Administration degree and the Accounting Paraprofessional Proficiency Certificate would only require 6 credits -2 courses, beyond those required for the A.A. in Business Administration. The requirements of the certificate program are attached, or you can view them online at:

<http://ccp.edu/college-catalog/degree-and-certificate-programs/proficiency-certificates/accounting-paraprofessional>.

If you have any questions, or would like to discuss the Accounting program further, we encourage you to reach out to one of the members of our Accounting faculty - Alan Davis, Barry Johnson, or Cory Ng, who will be more than happy to speak with you and help you.

We wish you all the best as you pursue your educational goals, and are here to help you as much as possible.

Sincerely,

The Department of Business Administration.

## Accounting Degree Program

### First Semester

ACCT 101 - Financial Accounting		4 credits
ECON 181 - Principles of Economics (Macroeconomics)		3 credits
ENGL 101 - English Composition I		3 credits
MATH 151 - Linear Mathematics or	MATH 118 with a "C" or better OR MATH 161 or higher placement	3 or 4 credits
MATH 161 - Precalculus I or	MATH 118 with a "C" or better OR MATH 161 or higher placement	
MATH 162 - Precalculus II or	MATH 161 with a "C" or better OR MATH 162 or higher placement	
MATH 171 - Calculus I	MATH 162 with a "C" or better OR MATH 171 placement	
MNGT 121 - Introduction to Business		3 credits

### Second Semester

ACCT 102 - Managerial Accounting	ACCT 101 with a grade of "C" or better	3 credits
ENGL 102 - The Research Paper	ENGL 101 with a grade of "C" or better	3 credits
ECON 182 - Principles of Economics (Microeconomics)		3 credits
ACCT 103 - Microcomputers in Accounting	ACCT 101 with a grade of "C" or better	3 credits
MNGT 141 - Principles of Management	Pre- or Corequisite: MNGT 121	3 credits

### Third Semester

ACCT 201 - Intermediate Accounting I	ACCT 101	3 credits
Humanities Elective		3 credits
ECON 112 - Statistics I	MATH 118 or higher than Math 118 on placement test	4 credits
Social Science Elective		3 credits
CIS 103 - Applied Computer Technology		3 credits

### Fourth Semester

ACCT 202 - Intermediate Accounting II	ACCT 201	3 credits
Accounting Elective (choose <b>one</b> of the following):		3 credits
ACCT 203 - Cost Accounting	ACCT 102	
ACCT 208 - Tax Accounting or		
ACCT 215 - Nonprofit Accounting or	ACCT 102 or ACCT 101 and department approval	
ACCT 206 - Auditing or	ACCT 201	
ACCT 250 - Advanced Accounting	ACCT 202	
ECON 114 - Statistics II	ECON 112	3 credits
Science Elective		3 or 4 credits
MNGT 262 - Business Law		3 credits

## Business Administration Program

### First Semester

MNGT 121 - Introduction to Business		3
ACCT 101 - Financial Accounting		4
MATH 162 - Precalculus II	MATH 161 with a grade of "C" or better or MATH 162 placement	3/4
<b>or</b>		
MATH 171 - Calculus I <sup>1</sup>	MATH 162 with a grade of "C" or better or MATH 171 placement	
ENGL 101 - English Composition I		3
ECON 181 - Principles of Economics (Macroeconomics)		3

### Second Semester

ENGL 102 - The Research Paper	ENGL 101 with a grade of "C" or better	3
Math 171 - Calculus I <sup>1,2</sup>	Math 162 with a grade of "C" or better or Math 171 placement	
<b>or</b>		
Math 172 - Calculus II	Math 166 with a grade of "C" or better or Math 171 with a grade of "C" or better	4
ACCT 102 - Managerial Accounting	ACCT 101 with grade of "C" or better	3
ECON 182 - Principles of Economics (Microeconomics)		3
Social Science <sup>1</sup>		3

### Third Semester

ECON 112 - Statistics I	MATH 118, or higher than MATH 118 on placement test	4
MNGT 141 - Principles of Management	Pre- or Corequisite: MNGT 121	3
History Elective <sup>1</sup>		3
CIS 103 - Applied Computer Technology		3
Laboratory Science <sup>1</sup>		4

### Fourth Semester

MNGT 262 - Business Law		3
MKTG 131 - Principles of Marketing	Pre- or coreq: MNGT 121	3
Business Elective <sup>1</sup> select one from:		3
ECON 114 - Statistics II	ECON 112	
FIN 151 - Risk Management and Insurance		
MNGT 142 - Management Information Systems	MNGT 121	
Humanities <sup>1</sup>		3

### Accounting Paraprofessional Proficiency Certificate

<u>ACCT 101</u>	Financial Accounting		4 credits
<u>ENGL 101</u>	English Composition I		3 credits
<u>ACCT 102</u>	Managerial Accounting I	ACCT 101 with a grade of C or better	3 credits
<u>ACCT 103</u>	Microcomputers in Accounting	ACCT 101 with a grade of C or better	3 credits
<u>ACCT 208</u>	Tax Accounting; or	For ACCT 215; ACCT 102 or ACCT 101 and department approval	3 credits
<u>ACCT 215</u>	Nonprofit Accounting		

Community College of Philadelphia

Degree / certificate Program requirements	Accounting Paraprofessional Proficiency Certificate 16 credits	Associate in Applied Science (AAS) in Accounting (62 credits and GPA of 2.0 (C average))	Associate of Arts (AA) in Business Administration (Transfer Program) 61 credits, earning a "C" or better in all courses and earning at least a 2.0 GPA Accountant, Auditor, Tax Accountant, Certified Public Accountant (CPA), Certified Management Accountant (CMA)
Career goal	Accounting paraprofessionals in business, government, and non-profit organizations	Number of accounting requirements transfer credits available for accountants, auditors, tax preparers, or other related programs.	The AA in Business Administration program is specifically designed to prepare students to transfer to those business schools that are accredited by the Association to Advance Collegiate Schools of Business (AACSB). Students choosing the AA in Business Administration should major in Accounting upon transferring to a 4 year institution.
Transfer options	Students earning the Accounting Paraprofessional Proficiency Certificate may elect to continue their education at the College by earning the A.A.S. degree in Accounting.	Students wishing to transfer to a 4 year school are strongly advised to seek information regarding admission and transfer requirements for those programs.	

**Important note:** Students currently enrolled in the AAS Accounting Program that intend to transfer to an AACSB accredited 4 year school for accounting should consider changing their majors to AA in Business Administration by completing a curriculum change form available in B2-22.