

2014

Mindy Ault
Rachel Nusbaum
Kaitlyn Richardson
Matthew Puckett
Alaide Vilchis Ibarra

District of Columbia Public School System

[YOUTH APPRENTICESHIP PROGRAM]

A group of students from American University in the School of Public Affairs was commissioned by the American Institute for Innovative Apprenticeships to examine the feasibility of a Youth Apprenticeship Program in the District of Columbia Public School System.

Submitted to:

Robert Lerman, American Institute for Innovative Apprenticeships
and
Erik Devereux, American University

Table of Contents

Rationale for Youth Apprenticeship Programs	4-10
Introduction	4
Importance of Apprenticeships	4-6
Overview of Case Studies	6-7
Program Overview and Comparison	7-9
DCPS Recommendation	10-20
General Recommendation	10
The Job Market	10-11
Program Specifics	12-18
Stakeholders	18-19
Implementation	19-20
Program Evaluation	20
Appendices	21-48
Appendix 1: Georgia Case Study	21-27
Appendix 2: Wisconsin Case Study	28-32
Appendix 3: Georgia Sample Work-Based Learning Program Application Form	33-35
Appendix 4: Georgia Sample Teacher Recommendation Form	36-37
Appendix 5: Georgia Sample Educational Training Plan	38
Appendix 6: Georgia Curriculum Electives.....	39-40
Appendix 7: Wisconsin Youth Apprenticeship Program Areas	41-43
Appendix 8: Industry Guides	44-49

Rationale for Youth Apprenticeship Programs

Introduction

“Apprenticeship provides experience that young people can acquire in no other way – the experience is interesting because the disciplines scattered throughout the adult world and the work they embody are often interesting. There is a texture to this part of the culture, a kind of uneven terrain, that demands a lot more of the self than is demanded or allowed in almost any other setting of young people’s lives.”

- Robert Halpern, *The Means to Grow Up*

“Apprenticeships help to ensure that the next generation of employers can find the next generation of employees.”

- Senator Tim Scott

Senator Scott’s recent evaluation of apprenticeships embodies both the spirit of these programs and their overarching objective – to bridge the skills gap and prepare our future workforce for in-demand jobs that move the economy and increase local industries’ global competitiveness.

An apprenticeship is a structured career and technical education course of work and study that pairs paid, on-the-job training in a specific career cluster with corresponding classroom learning integrated into existing high school curriculum. From the outset students, counselors, and employers work together to structure the apprenticeship, which often culminates in an occupational certificate that shows future employers a certain level of practical experience and skill.

This paper provides a roadmap for implementing a Youth Apprenticeship Program in the District of Columbia Public Schools. The recommendations are based on two well-established programs in Wisconsin and Georgia. This paper does not address the economic aspects of youth apprenticeships or sources of funding, as they were beyond the scope of work specified by the client.

Importance of Apprenticeships

Educators and policy makers have become highly concerned with promoting a smooth transition from education to high-skilled employment for all students. At the same time, the gap between employer needs and youth skillsets has widened while the job market remains stagnant – with unemployment stuck above 7% since 2008¹. The need to prepare more workers with the skills and knowledge to sustain a high-wage economy has focused attention on youth apprenticeship as a policy strategy for improving the school-to-work transition for many young people in the United States.

Youth apprenticeship has been defined as a "learning program for young people that integrates on-the-job learning with school-based instruction, that bridges high school and postsecondary school,

¹ <http://data.bls.gov/timeseries/LNS14000000>

and that results in both academic credentials and certification of mastery of work skills"² Apprentices "learn by doing" in paid positions and train closely with an experienced mentor, while classroom experiences connect with and enhance workplace skill development.

Employers

Employers involved in apprenticeship programs benefit from a more highly skilled, experienced, and technologically competent potential workforce. According to the Florida Department of Education, "sponsoring an apprenticeship program... reduces the cost of training, attracts more applicants, and improves productivity. Apprenticeship programs provide an opportunity for sponsors to share the costs of training through economy of scale and by using available federal and state resources to assist in developing and delivering training programs."³ Apprenticeships result from an acknowledgment of the "skills gap" students face when they graduate, and can bridge that gap between education and the practical experience needed in almost any job.

Studies have shown that employers who sponsor apprentices attain both lower employee turnover and higher productivity. Nearly nine of every 10 sponsors would "strongly recommend" registered apprenticeship to others companies, and over 80 percent of sponsors particularly valued registered apprenticeship's role in helping them meet their demand for skilled workers.⁴

Apprentices

Structured apprenticeship programs can give DC-based youth the opportunity to graduate high school having gained substantive, work-based experience with a progressive pay scale in targeted industries within their community. Apprentices gain a useful education, including a certified credential, with little or no educational debt – an appealing prospect considering skyrocketing college costs and record-high student debt levels.

A U.S. Department of Labor study entitled "*An Effectiveness Assessment and Cost-Benefit Analysis of Registered Apprenticeship in 10 States*" found that participants who completed the registered apprenticeship program had substantially higher average earnings over both a 9-year and 36-year period.⁵

Economy

Apprenticeships can lead to self-employment, startups, and business ownership. To that end, programs often include instruction in business ownership and operation, leading to increased economic output and opportunity. A skilled workforce that can compete globally creates advantages for both American workers and employers, in turn spurring economic growth. The President agrees: he recently pledged \$100 million for apprentice expansion, noting that 9 of 10 apprentices end up in jobs that pay starting salaries of above \$50,000 a year.⁶

² Jobs for the Future, 1993, p. 1

³ <http://www.fldoe.org/workforce/apprenticeship/benefits.asp>

⁴ http://www.urban.org/UploadedPDF/411907_registered_apprenticeship.pdf - Robert Lerman

⁵ http://wdr.doleta.gov/research/FullText_Documents/ETAOP_2012_10.pdf

⁶ <http://www.pbs.org/newshour/rundown/obama-biden-announce-600-million-job-grants/>

Legislation and Support

Apprenticeships have long been bipartisan initiatives, and recently the economy has pushed apprenticeship programs to the forefront of education and skills training reform. Democrats and Republicans at both the state and federal level have worked together to promote and strengthen apprenticeship programs and funding. Because apprenticeships have proven to be a useful tool in bridging the skills gap and creating pathways to careers for youth apprentices, lawmakers have been eager to use existing apprentice programs as models and to push forward with legislation and initiatives within their own jurisdictions.

Learning from International Successes

Across Europe, apprenticeships are a valuable tool even for advanced occupations, such as engineering – though the history of the education and career fields in many European countries has shaped their system over the course of centuries. While full-scale adoption of a European model is not feasible in the United States, these programs can be helpful in guiding implementation domestically. In the UK, for example, engineering apprenticeships are twice as popular as engineering degrees, and apprenticeship is seen culturally and practically as the best way to enter the profession. Canada, which faces similar implementation issues and concerns as the U.S., already has ten times more openings for apprentices than we do.

Until recently, apprenticeships in the U.S. have been relegated to the professional crafts and trades, and apprentice-like programs for secondary students included a range of diverse but not integrated programs – such as Job Corps, career education, and cooperative education – that reflected the decentralized nature of U.S. public education. However, it has been argued that the future success of youth apprenticeship programs in the United States may also lie in the strength of this decentralized system. As Hamilton (1990) noted, the United States' decentralized economic and education systems, “result in a variety of local approaches and designs to school-to-work programs, including youth apprenticeship. This diversity and experimentation strengthens the viability of youth apprenticeship programs in a society that values, and indeed desires, academic education, economic opportunity, and the connection between the two.”

Overview of Case Studies

Georgia

In 1992, the Georgia General Assembly passed Georgia Code #20-2-161.2 establishing the legal basis for developing youth apprenticeship programs in the state. This law directed the Georgia Department of Education, in collaboration with the Departments of Labor and Technical and Adult Education, to develop policies, procedures, and standards necessary to implement youth apprenticeship programs for all state school systems by 1996. This legislation specified the goals and distinct elements for youth apprenticeship programs as they were to be implemented in the state.

Georgia’s apprenticeship model has effectively developed a highly career-oriented program, with less emphasis on school-based learning. Since 2013, the state has based their apprenticeship model heavily on the national career cluster model. Georgia’s program has been very successful overall as

well, as youth apprenticeship programs "enhanced the likelihood that students will pursue further education or training," and students have reported high levels of happiness with the apprentice program and their personal development within it⁷.

Wisconsin

Wisconsin was one of eight states to receive a School-to-Work implementation grant in 1994. Beginning in their junior year of high school, Wisconsin youth apprentices are paid for 10-15 hours per week of work and take four semesters of apprenticeship related classes while they complete their academic high school program. Wisconsin's first apprenticeship began in the printing industry in September 1992. It has since produced 125 graduates, and has grown to serve over 900 students in 11 different program (industry) areas.

Wisconsin's apprenticeship program has also been highly successful and provides insight to those interested in program design. For instance, the governor awarded \$1.86 million for further development of these programs in 2013, and it was recently found that 70% of 2-year participants continue working in the work-placement site after completion of the apprenticeship.

Program Overview and Comparison

The following chart shows the basics and specifics of youth apprenticeship programs, and compares our recommended program to those in Georgia and Wisconsin.

	D.C.	Wisconsin	Georgia
Stakeholders	<ul style="list-style-type: none"> · Secondary and postsecondary schools · Employers · Worksite mentor · Apprenticeship program administrator · Guidance counselors · Parent, guardian, and youth 	<ul style="list-style-type: none"> · Students · Employers · Department of Workforce Development (DWD) · Youth Apprenticeship Coordinator · Worksite mentor · Parents · Educators · Community 	<ul style="list-style-type: none"> · Secondary and postsecondary schools · Employers · Worksite mentor · Apprenticeship program administrator · Guidance counselors · Parent, guardian, and youth
Worksite Mentor	Yes	Yes	Yes

⁷ Smith, C. L., & Clark, P. J. (1999). Youth Apprenticeship in Georgia: An Assessment of Students. *Journal of Cooperative Education*, 34(1), 7-16.

	D.C.	Wisconsin	Georgia
Learning Objectives	<ul style="list-style-type: none"> · Skills standards checklist · Created by student and worksite mentor 	<ul style="list-style-type: none"> · Skills standards checklist · Designed by local consortium 	<ul style="list-style-type: none"> · Educational training plan · Created by student, worksite mentor, and apprenticeship program administrator
Length of Program	3-4 years (2 years high school, 1-2 years post high school)	1 or 2 years	2 years
Required Hours	<ul style="list-style-type: none"> · 500 hours of work-based learning in high school, 1500 additional hours post high school · No reduction in classroom hours from standard academic schedule 	1-year apprenticeship: <ul style="list-style-type: none"> · 180 hours of technical instruction · 450 hours of work-based learning 2-year apprenticeship: <ul style="list-style-type: none"> · 360 hours of technical instruction · 900 hours of work-based learning 	<ul style="list-style-type: none"> · 144 classroom hours or 135 hours in a block schedule · 2,000 work hours
Wages	Progressive wages	Fair market wages	Progressive wages
Eligibility	<ul style="list-style-type: none"> · Any student in 11th or 12th grade who is at least 16 years old · Participation in pre-apprenticeship counseling 	<ul style="list-style-type: none"> · Enrolled in a public or private high school or approved GED or High School Equivalency program or registered in a home-based high school program · Satisfactory performance on WI Pupil Assessment System or demonstrate ability to learn required skills · Participation in career exploration / guidance activities 	<ul style="list-style-type: none"> · Any student in 11th or 12th grade who is at least 16 years old · Demonstration of academic and professional capability

	D.C.	Wisconsin	Georgia
Program Areas	<ul style="list-style-type: none"> · Public Safety · Science, Technology, Engineering and Math (STEM) · Information Technology · Media / Marketing · Healthcare Science · Hospitality 	<ul style="list-style-type: none"> · Agriculture, Food & Natural Resources · Architecture and Construction · Arts, A/V Technology and Communications · Finance · Health Science · Hospitality, Lodging and Tourism · Information Technology · Manufacturing · Science, Technology, Engineering & Math (STEM) · Transportation, Distribution & Logistics 	<ul style="list-style-type: none"> · Agriculture, Food, & Natural Resources · Architecture and Construction · Arts, A/V Technology, & Communications · Business Management & Administration · Education and Training · Energy · Finance · Government and Public Administration · Healthcare Science · Hospitality and Tourism · Human Services · Information Technology · Law, Public Safety, Corrections, & Security · Manufacturing · Marketing · Science, Technology, Engineering and Mathematics · Transportation, Distribution and Logistics
Evaluation	<ul style="list-style-type: none"> · Onsite evaluation of student performance conducted by the worksite mentor · Annual customer satisfaction survey given to employers 	<ul style="list-style-type: none"> · Onsite evaluation of student performance conducted by the worksite mentor 	<ul style="list-style-type: none"> · Onsite evaluation of student performance conducted by the worksite mentor · Annual customer satisfaction survey given to employers

DCPS Youth Apprenticeship Program

General Recommendation

We are recommending that in the 2015-2016 school year, five in-boundary high schools in DCPS implement a pilot youth apprenticeship program (YAP). The five-school pilot will last two years. After the pilot program concludes, each traditional high school in the DCPS system will offer a youth apprenticeship program to their junior and senior level students, incorporating 'lessons learned', during the 2017-2018 school year. The program will be evaluated at the end of each year of the pilot, then subsequently every five years to keep the program up to date.

Rashid Davis, principal at Pathways in Technology Early College High School in New York City said, "it's incredible how much further children can reach when industry is closer to them to help them set the context for learning."⁸ A structured apprenticeship program will give DC youth the opportunity to graduate high school having gained substantive work based experience with a progressive pay scale in targeted industries in their community. The apprenticeship program is similar in philosophy to the career and technical education (CTE) classes that are engaged in planning and preparation this school year. The apprenticeship model will go a step beyond CTE by requiring a more intensive work-based learning component. The apprenticeship program will provide the DC area with more highly skilled, experienced, and technologically competent young people. Like CTE, the program will provide an academically challenging experience to interested DCPS students. It will also help local industries recruit and retain high performing DC-based youth for the future.

The Job Market

In 2013, 9.6 percent of families contained an unemployed person, down from 10.5 percent in 2012⁹. As the country slowly rebounds from the recession of 2008, it is the skills gap that will present the largest obstacle in achieving maximum growth moving forward. The American Society for Training and Development defines the skills gap as "a significant gap between an organization's current capabilities and the skills it needs to achieve its goals."¹⁰ Additionally, the growing asymmetries in the labor market will lead to a youth unemployment crisis that will present significant economic challenges for the United States. Organizations need new employees to enter the workforce prepared with the skills and knowledge they need to grow their company, and a strong apprenticeship program in a high school setting has the ability to achieve those goals.

As our nation's capital, the job market in DC is significantly different from other metropolitan hubs across the country. According to the DC Chamber of Commerce, 59.9 percent of the population ages 16 and over in the District of Columbia in 2008 were employed in management, business and

⁸ Foroohar, R. (2014). The school that will get you the job. *Time Magazine*

⁹ United States Department of Labor (2013). Bureau of Labor Statistics. Retrieved from <http://www.bls.gov/>

¹⁰ Galagan, P. (2010). BRIDGING THE SKILLS GAP: New factors compound the growing skills shortage. *T + D*, 64(2), 44-49,6. Retrieved from <http://search.proquest.com/docview/227028987?accountid=8285>

arts related jobs. 17.8 percent were employed in sales, followed closely by service industry with 15.4 percent of the population. The additional 6.9 percent of the population are production, transportation, production, and construction¹¹.

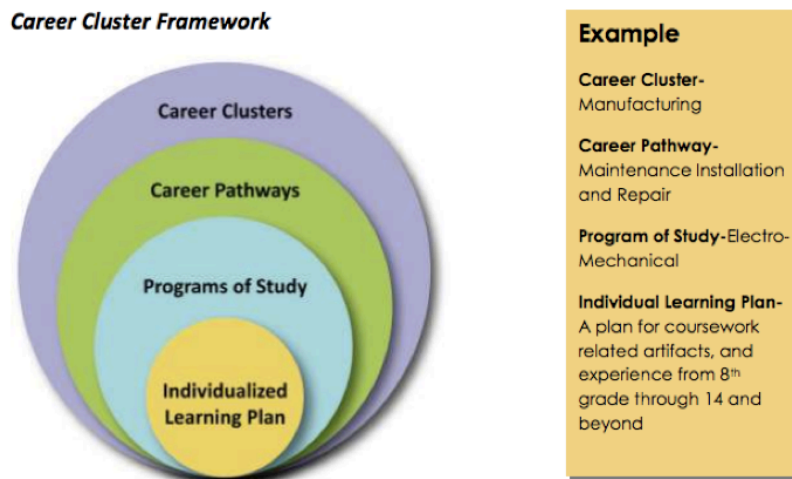
When considering a youth apprenticeship program, it must be analyzed as more than another “education initiative”. Developing and retaining a highly qualified workforce should be an economic priority for DC, and a strong apprenticeship program is a proven way to achieve this goal. In 2011 only 13.2 percent of 16-19 year old District residents were able to find paid, unsubsidized employment.¹² If all students were provided with an opportunity to gain work experience in an in-demand industry in DC while completing their high school requirements, both the students and DC industries would be better off.

Program Specifics

Career Cluster Framework

The career cluster model, illustrated below, outlines the framework that individual apprentices follow as they seek to enter a position. In general, apprenticeships will be gathered loosely into a ‘career cluster’, which lumps together careers into broad areas such as Information Technology, STEM, or Health Care Systems. After an apprentice declares an interest in a specific cluster, a career pathway is developed in which a more direct career and job description is developed for the student. The pathway is the direct line between the student and employer, and is the first step an apprentice takes in entering that field.

13



¹¹ U.S. Census Bureau, 2012 American Community Survey. District of Columbia. Retrieved from <http://factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?src=bkmmk>

¹² Bureau of Labor Statistics, Local Area Unemployment Statistics, 2011. Retrieved from <http://www.bls.gov/au/ptable14full.pdf>

¹³ Wisconsin Department of Public Instruction http://cte.dpi.wi.gov/cte_careerclustershome

After choosing a career cluster and finding a career pathway that singles out a targeted occupation for the apprentice, formulation of a program of study between the school, the employer, and the apprentice begins. Generic curricula for most pathways are roughly outlined prior to this stage, but an individualized learning plan for each student is created, including a work and school schedule, elective classes, specific skills to develop over the course of the program, and a set of expectations for each party in general.

In developing guidelines for youth apprenticeship programs, we recommend school systems to implement programs that have a well-defined occupational focus beginning in grade 11. The programs should also have coordinated school- and work-based components and lead to both a high school diploma and an approved certificate that is recognized in each occupation.

With the development of the CTE program, DCPS outlined specific industry areas that correspond with the job market in DC. Career Academies in DC now offer twelve career clusters:

1. Arts, Media and Communication
2. Biotechnology & Environmental Science
3. Business, Finance & Marketing
4. Construction & Design
5. Engineering
6. Health & Medical Sciences
7. Human Services & Education
8. Hospitality & Tourism
9. Information Technology
10. Law, Public Safety & Security
11. Mortuary Sciences
12. Transportation

In the youth apprenticeship pilot, we recommend offering six career clusters. The six that were chosen align with the industries outlined by DCPS that have the largest percentage of the population employed in the sector. Additionally, they were chosen because there has been a recognized structural change in the economy to favor technology-based skills.¹⁴

The evaluation at the end of five years will gather and analyze data to assess whether the six chosen industries have high retention rates and whether they provide a gateway to success for students. The six career clusters that we propose for the pilot are:

¹⁴ Foroohar, R. (2014). The school that will get you the job. *Time Magazine*

1. STEM (Science, Technology, Engineering & Math)
2. Information Technology
3. Hospitality
4. Public Safety
5. Media/Marketing
6. Health Services

Curriculum

DCPS has established graduation requirements that will not change for students who chose the apprenticeship program. There are 3.5 elective credits available to DCPS students in grades 9-12, and for those that take the apprenticeship program route, all 3.5 elective credits must be recommended courses that coincide with their career cluster. Students are strongly encouraged to take advanced placement classes in their core classes.

We recommend using Georgia’s elective list as a starting point for the electives offered in the six career clusters.¹⁵ The elective coursework that coincides with the career cluster may be offered by the school district, a technical or community college or university. The student must receive high school credit toward graduation for the technical instruction.

DCPS Graduation Requirements¹⁶.

Subject	Credits (Carnegie Units)
Art	0.5 credits
Electives	3.5 credits
English	4.0 credits
Health and Physical Education	1.5 credits
Mathematics (including Algebra I, Geometry, Algebra II, and Upper Level Math)	4.0 credits
Music	0.5 credits
Science (including biology, 2 lab sciences, and 1 other science)	4.0 credits
Social Studies (including World History I & II, DC History, US Government, US History)	4.0 credits
World Languages	2.0 credits
Total	24.0 credits

¹⁵ See Appendix 6 for a list of electives for each career cluster.

¹⁶ <http://dcps.dc.gov/DCPS/College+and+Careers/High+School+Planning/Graduation+Requirements>

Work Based Component

Interested students will choose a career cluster, and both their work based learning experience and curriculum will be tailored to their chosen industry. In a student's junior year, we are recommending that students focus strictly on curriculum and developing beginner level hard and soft skills relevant to their respective industry. Based on a phone interview had with staff in the Engineering Department at McKinley Tech High School, industries prefer to have student's come to them with some knowledge in their respective industry, which is informing this recommendation.

In a student's senior year, we are recommending 500 hours of work-based learning. This will amount to roughly 10 hours per week. A critical component of a Youth Apprenticeship Program is a progressive pay scale; it has the ability to attract quality students and employers recognize increased retention rates. We are recommending an additional 1500 hours of work-based learning be included as an extension of the high school youth apprenticeship program. The additional 1500 hours should be accompanied by a respective increase in wage, as the student will have graduated high school and can give a greater commitment to the industry component. We are recommending that the completion of the full 2000 hours be a requirement for receiving the Certificate of Occupational Proficiency that may be awarded at the end of the Youth Apprenticeship Program¹⁷. Expanding structured education beyond 12th grade can be powerful, and allow students to fully develop industry skills that are valuable and attractive to future employers.

For the work-based component that will be a part of a student's senior year, the students are to be granted release time from the school to work as an apprentice for any business enterprise which is approved. Each student will have a mentor at their respective company/organization. At multiple points the students should be assessed on their development of appropriate and relevant skills.

Each mentor will be expected to develop a list of skills they expect the student to master through the duration of their work based experience. The tasks will be designed specifically to develop workplace competency at the respective company/organization in the student's chosen career cluster. Wisconsin developed skills checklists for each program area offered in the state Youth Apprenticeship Program. We recommend offering these skill checklists to DC based employers as a starting point, and suggesting that employers add or delete skills as they see fit.

Wisconsin mentors are encouraged to use a 3 point rating scale when assessing students:

Rating Scale:

3 = Exceeds entry level criteria | Requires minimal supervision | Consistently displays this behavior

2 = Meets entry level criteria | Requires some supervision | Often displays this behavior

1 = Needs improvement | Requires much assistance & supervision | Rarely displays behavior

¹⁷ Additional details regarding the Certificate of Occupational Proficiency on Page 18

Sample Checklists (public safety omitted as Wisconsin does not offer it as a career cluster)

A. STEM (Science, Technology, Engineering & Math)

Engineering and Technology Pathway

Engineering Drafting Unit – REQUIRED FIRST	Minimum rating of 2 for EACH Check Rating		
	1	2	3
1. Apply engineering principles	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Interpret technical drawings	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Use measuring devices accurately	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Organize databases, files, & drawings	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Reproduce documents & plans	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Use engineering drafting software	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Develop one-view drawings	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Develop 2D (orthographic) view drawings	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Develop 3D view models	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Prepare auxiliary views	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. Prepare section views	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Dimension drawings	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. Apply lettering & basic annotation to drawings	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Check, revise, & record drawings	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. Participate on an engineering project	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

B. Information Technology

IT ESSENTIALS UNIT	Minimum rating of 2 for EACH Check Rating		
	1	2	3
1. Apply applicable IT industry knowledge	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Schedule appointments	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Process customer requests	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Query, view, and extract data	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Perform common technical requests	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Assist to resolve customer problems	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Perform basic back up procedures	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Monitor systems to ensure optimal functioning	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Prepare required reports	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Install a desktop system and peripheral equipment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. Install & configure an operating system (O/S) and/or drivers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Upgrade an operating system (O/S)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. Install and uninstall an application	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Install operating system (O/S) service packs and security patches	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. Ghost a computer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. Participate on a system project team	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

C. Hospitality

Restaurant & Food/Beverage Services Pathway

Food & Beverage- Dining Area Unit	Minimum rating of 2 for EACH Check Rating		
	1	2	3
1. Follow safe food handling and sanitation procedures	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Ensure dining area readiness	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Seat the customer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Serve customers at the table	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Process sales	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Maintain service area and bus station	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Set up a meeting/event	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Serve customers at a meeting/event	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Assist with management tasks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Food & Beverage- Kitchen Area Unit	Minimum rating of 2 for EACH Check Rating		
	1	2	3
1. Follow safe food handling and sanitation procedures	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Follow inventory procedures	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Operate foodservice equipment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Coordinate food orders	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Assist to prepare menu items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Perform kitchen steward tasks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Assist with management tasks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

D. Graphic Design/Marketing

Printing Technology Pathway

Graphic Design and Pre-Press Unit	Minimum rating of 2 for EACH Check Rating		
	1	2	3
1. Study effective design elements (W/S)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Analyze a job ticket	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Use graphics and/or pre-press software	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Maintain project, image, photo, and/or illustration files	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Obtain scanned or photographic images	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Create and/or edit objects, shapes, charts, images, and/or graphics	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Apply and/or correct color	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Select typography	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Create and/or edit a layout	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Perform pre-flight print on job files	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. Review proofs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Trap project files	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. Impose and configure press sheets	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Send completed files to RIP	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. Produce print plates/stencils (N/A for digital printing)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. Maintain pre-press equipment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17. Participate on a print project team	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

E. Health Services

Medical Assistant Unit	Minimum rating of 2 for EACH Check Rating		
	1	2	3
22. Use Standard Precautions & Infection Prevention	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Clerical			
23. Manage client appointments	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
24. Create &/or maintain the client record	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
25. Complete client identification labels	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
26. Verify client &/or insurance information	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
27. Order & receive supplies &/or equipment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lab			
28. Clean & prepare supplies &/or instruments	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
29. Instruct clients in collection of specimens	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
30. Process specimens for testing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
31. Assist in performing testing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Clinical			
32. Obtain/update client information	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
33. Position client	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
34. Measure height/weight	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
35. Measure vital signs (W/S)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
36. Set up area for exam/procedures	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Application Process

Any student can apply. The unavailability of slots within local businesses or industries within a student’s selected career focus may prevent a student from participating in the youth apprenticeship program.

In order to be eligible for participation in the Youth Apprenticeship Program, 2015 pilot, students must live in the neighborhood of one of the five targeted high schools. The student must have also participated in career exploration, guidance and/or education activities, which allow them to make an informed choice about their chosen career pathway.

Student applicants for the apprenticeship program must be at least 16 years old when they begin their work based component their senior year, and meet the program sponsor’s qualifications.

We recommend using Georgia’s application packet for the pilot program, and making changes after the two year pilot as deemed necessary¹⁸. The Georgia application process includes a teacher recommendation, which we do recommend including in the DCPS program. Student’s 10th grade teachers especially have a unique lens into whether or not a student is an ideal candidate for an apprenticeship program or not.

¹⁸ See Appendix 3 and 4 for Georgia Application Packet and Teacher Recommendation Forms

Credentials

Along with a high school diploma, students who successfully complete the youth apprenticeship program will get a Certificate of Occupational Proficiency. This certificate will signify that the student has mastered the skills outlined and agreed upon by the work based mentor, Apprenticeship Program Mentor, and the student. To be awarded this certificate, the Apprenticeship Program Mentor and Work Based Mentor must jointly agree that the student has mastered all relevant competencies. The certificate will denote to other employers in the industry that the student has been exposed, and has developed competency in industry specific skills.

Stakeholders

Similar to Georgia, we recommend having a detailed outline of responsibilities for all stakeholders involved in the youth apprenticeship program. We are suggesting using the same general outline as Georgia for the pilot, and adapting after two years as deemed necessary.

Secondary Schools

- Supporting career-based learning
- Recruiting students
- Assisting in identifying potential industry partners
- Providing time and other resources for students

Post-secondary schools

- Participating in developing agreements to for advanced/dual credit arrangements
- Assisting in developing curriculum
- Linking structure of YAP to post-secondary training
- Monitoring and evaluate program

Businesses

- Following all federal, state, and local regulations and follow guidelines by the educational institution regarding the employment of students
- Providing each employed students with a worksite supervisor
- Being willing to participate in the Advisory Committee
- Being available for Career Day activities, speaking to classes, judging competitions and other events

Worksite mentor

- Participating in mentor orientation and training
- Guiding students in acquiring skills outlined in the Education Training Plan
- Monitoring progress
- Serving as a coach and role model by supporting the students' career goals

Apprenticeship Program Administrator

- Locating, analyzing and evaluating sustainability of industries.
- Interviewing and notify students of acceptance and future steps

- Maintaining student records
- Monitoring industries to ensure they are following state and federal guidelines
- Making regularly scheduled visits to worksites for monitoring and speaking with the site supervisor to ensure compliance by all parties
- Assisting graduates in ensuring full-time employment and/or school

Guidance counselors

- Assisting with the recruitment and class scheduling
- Providing career and educational planning assistance to students
- Giving transcripts, attendance records, and discipline records for screening

Parent/Guardian

- Being generally involved with the progress of their child
- Signing the educational training agreement, parental permission form and any other forms related to participation
- Providing transportation (if applicable)
- Contacting the apprenticeship program administrator rather than an employer about concerns and inquiries

Youth

- Maintaining regular attendance in classrooms and job sites
- Continuing to make satisfactory progress in the academic and career and technical education classes
- Give appropriate notice if terminating employment
- YAP students maintain contract and report data to the WBL-Coordinator after graduation in order to document completion of program

Implementation

Timeline - Major Milestones

2014-2015

- Hire Apprentice Program Administrator (Summer 2014)
- Begin contact with local industry (Fall 2014)
- Train School Counselors (Fall 2014)
- Host informational session with parents/community (Winter 2014)
- Students submit applications for apprenticeship program (April 1 deadline)
- Student selection for apprenticeship program (June 1)
- Schedule design- student, counselor and coordinator (Summer 2015)

2015-2016

- First cohort of students begin (September 2015)
- Take first semester of targeted classes as introduction to field (Fall 2015)
- Repeat recruiting schedule implemented in 2014-2015 with changes as deemed necessary
- Begin securing industry placement for 2015-2016 school year (Spring 2016)

2017-2018

- Second cohort of students begin (September 2016)
- First cohort of students begin working in the field
- First cohort of students establish work based learning objectives and goals, progressive pay scale agreed upon
- Mid year check in with employer, student and coordinator (December 2017). Employer conducts on-site evaluation
- Repeat recruiting schedule implemented in 2015-2016 with changes as deemed necessary

Final year review with employer, student and coordinator. Employer conducts on-site evaluation and customer satisfaction survey. Student completes exit survey.

Program Evaluation

We recommend using another AU Practicum student group as an unbiased evaluator for the end of each year in the two year pilot program. The student group will need to collect skills checklists and conduct email and or phone interviews with the Apprentice Program Administrator counselor, teachers, students and work based mentors to get all the data required to do a complete analysis.

As a longer term evaluation, it will be part of the Apprentice Program Administrator job description to keep track of students to see whether or not they remained in their career cluster 5 years after they graduated from high school, as well as salary and job satisfaction type data.

Appendices

Appendix I. Georgia Case Study

The Job Market

The job market in the state of Georgia is steadily recovering after being severely affected by the 2008 recession. The unemployment rate in the state went from a low of 3.3 percent in 2000 to a high of 10.4 percent in 2004 percent in 2010¹⁹. Since 2011, Georgia's unemployment rate has continuously decreased and it is now 7.1 percent, 1.6 percentage points above the year when the apprenticeship program begun.

Background to Youth Apprenticeship Programs

In 1992, the Georgia legislature passed Georgia Code #20-2-161.2 mandating that the Georgia Department of Education, and the departments of Labor, and Technical and Adult Education develop a youth apprenticeship program (YAP) that would be implemented in all schools by 1996. The law also set minimum standards that still guide the youth apprenticeship programs today such as minimum on-the-job training hours, wages, school counseling, etc. The Department of Education expected programs with strong occupational focus and school-work components that had input from valuable community stakeholders²⁰.

To test how the programs would work in the state, twenty-four schools received grants from the Department of Education to implement pilot programs for the 1994-1995 school year. The grant left parts of the implementation of each program to the discretion of the school and a youth apprenticeship program administrator, a person that coordinates the program in a particular district²¹. These administrators still coordinate youth apprenticeship programs in the state today. Those hired for the position had a one-week initial training session and participated in meetings with the Department of Education, the Department of Technical and Adult Education, and a faculty member from the Department of Occupational Studies at the University of Georgia.²²

The general population viewed the implementation of the program as a step towards preparing students to compete in the global market successful future. Furthermore, students from different areas within Georgia had the opportunity to graduate high school with practical knowledge in industries in their communities²³. Today, the program runs in all 165 school systems in the state. It focuses on academic performance, school workplace behavior, job performance, and professional portfolios for students.

¹⁹ Bureau of Labor Statistics <http://data.bls.gov/pdq/SurveyOutputServlet>

²⁰ Smith, C. L. (1997). Initial analysis of youth apprenticeship programs in Georgia.

²¹ Smith, C. L. (1997). Initial analysis of youth apprenticeship programs in Georgia.

²² Smith, C. L. (1997). Initial analysis of youth apprenticeship programs in Georgia.

²³ HOLSENDOLPH, E. (1995, Apr 30). Comments rouse rural school district to action apprenticeship program started. *The Atlanta Constitution (Pre-1997 Fulltext)*. Retrieved from <http://search.proquest.com/docview/293034976?accountid=8285>

Stakeholders²⁴

The Georgia Department of Education Manual outlines the stakeholders in YAP and their responsibilities. Having specific responsibilities for each stakeholder allows the program to run smoothly. Secondary schools, students, counselors, parents, post-secondary schools, businesses, worksite mentors, and the apprenticeship program administrator all play important roles in ensuring its success. It is important to highlight that most stakeholders facilitate the work involved in YAP while coordinators run and track the program itself. The Georgia Department of Education sees the responsibility of each stakeholders as follows:

Secondary Schools

Their duty is generally facilitating recruitment and providing information for potential candidates and to other parties who might need it. Responsibilities of secondary schools include:

- Supporting career-based learning
- Recruiting students
- Assisting in identifying potential industry partners
- Providing time and other resources for students

Post-secondary schools

Their responsibilities concentrate in ensuring that students have a smooth academic transition to post-secondary education, and participating in partnerships. Responsibilities of post-secondary schools include:

- Participating in developing agreements to for advanced/dual credit arrangements
- Assisting in developing curriculum
- Linking structure of YAP to post-secondary training
- Monitoring and evaluate program

Businesses

Businesses have similar responsibilities to those that they have to their regular employees. They must follow guidelines and provide YAP students with compensation and evaluations that reflect their performance on the tasks they agreed upon. Responsibilities of businesses include:

- Following all federal, state, and local regulations and follow guidelines by the educational institution regarding the employment of students
- Providing each employed students with a worksite supervisor
- Being willing to participate in the Advisory Committee
- Being available for Career Day activities, speaking to classes, judging competitions and other events

Worksite mentor

The worksite mentor will be the main contact in the businesses for the Apprenticeship Program Administrator. By law, all industries taking part in YAP must assign a worksite coordinator that can serve as a supervisor and guide to the student. Responsibilities of the worksite mentor include:

²⁴ HOLSENDOLPH, E. (1995, Apr 30). Comments rouse rural school district to action apprenticeship program started. *The Atlanta Constitution (Pre-1997 Fulltext)*. Retrieved from <http://search.proquest.com/docview/293034976?accountid=8285>

- Participating in mentor orientation and training
- Guiding students in acquiring skills outlined in the Education Training Plan
- Monitoring progress
- Serving as a coach and role model by supporting the students' career goals

Apprenticeship Program Administrator

The apprenticeship program administrator is the main coordinator of the program. They track industries, students and schools and ensure that all of the different stakeholders do their part within the system. Responsibilities of the program administrator include:

- Locating, analyzing and evaluating sustainability of industries.
- Interviewing and notify students of acceptance and future steps
- Maintaining student records
- Monitoring industries to ensure they are following state and federal guidelines
- Making regularly scheduled visits to worksites for monitoring and speaking with the site supervisor to ensure compliance by all parties
- Assisting graduates in ensuring full-time employment and/or school

Guidance counselors

Guidance counselors at schools play an important role in the academic side of YAP. They enroll students in classes, provide information to suitable candidates, and assist in scheduling classes that follow the requirements of YAP. Responsibilities of guidance counselors include:

- Assisting with the recruitment and class scheduling
- Providing career and educational planning assistance to students
- Giving transcripts, attendance records, and discipline records for screening

Parent/Guardian

Parents or guardians must sign the educational training agreement and parental permission for students to participate in YAP. Georgia's Department of Education sees parent involvement as key to the success of students in the programs. Responsibilities of parents/guardians include:

- Being generally involved with the progress of their child
- Signing the educational training agreement, parental permission form and any other forms related to participation
- Providing transportation (if applicable)
- Contacting the apprenticeship program administrator rather than an employer about concerns and inquiries

Youth

The student's main responsibilities within the program are acting as if they were an employee of their placement worksite while still fulfilling the academic requirements for YAP. Responsibilities of students include:

- Maintaining regular attendance in classrooms and job sites
- Continuing to make satisfactory progress in the academic and career and technical education classes
- Give appropriate notice if terminating employment

- YAP students maintain contract and report data to the WBL-Coordinator after graduation in order to document completion of program

Program Specifics

Georgia Code #20-2-161.2, the law that created the youth apprenticeship program, mandated program specifics to ensure minimum requirements for the work and school components in youth apprenticeship programs. However, the law also recognized that different communities have different industries, and that employers have diverse operating mechanisms. As a result, the YAP administrator coordinates many aspects of the implementation in their own district such as finding employers, YAP application and rules, setting up an educational training plan, and facilitating setting up industry tasks students must perform.

Apprenticeships are not mandated to be registered with the United States Department of Labor (DOL) by law but they do meet the hourly requirements needed for registration. In addition, DOL’s Office of Apprenticeship in Georgia indicated in 2010 the need to move towards registering more apprenticeships to ensure student success²⁵.

Basic Guidelines by Law

	Minimum Requirements
Eligibility	<ul style="list-style-type: none"> • Any student in 11th or 12th grade who is older than 16 years old • Students must complete at least 1 credit in a class related to his/her career • Students must show academic and professional capability
Hours	<ul style="list-style-type: none"> • 144 classroom hours or 135 in block schedule • 2,000 hours of on-job training • 5 hours of work per hour of release time
Certificates/Credit	<ul style="list-style-type: none"> • Secondary school credit • Post-secondary certificate of occupational skills (Industry-recognized credential issued by the Georgia Department of Education that certifies students mastered certain skills)
Tasks	<ul style="list-style-type: none"> • Employer and apprentice must set a detailed plan that identifies task and skills gained • Dependent on development of training plan, a list of processes, skills, and knowledge students are expected to learn
Wages	<ul style="list-style-type: none"> • Progressive wages
Evaluations	<ul style="list-style-type: none"> • On-site evaluation of student performance • Yearly customer satisfaction survey to employers

²⁵ Griffin, J. (2010). Georgia Apprenticeship. [Official DOL Blog]. Retrieved from <https://21stcenturyapprenticeship.workforce3one.org/ws/21stcenturyapprenticeship/pages/blogs.aspx?pparams=23>

Implementation

During their freshman and sophomore year of high school, counselors and apprenticeship program administrators will continuously seek to inform students about the possibility of joining YAP once they reach their junior and senior years. Recruitment varies among different school districts but generally includes speaking to students about requirements of benefits of the program.

Students must apply for YAP through a process that usually includes filling out an application, providing recommendations from a teacher, and turning in a parental permission form²⁶. Applications and their processing can vary from school to school. Although the Department of Education has sample document, schools are allowed to change them based on their particular guidelines^{27,28}. The apprenticeship program administrator seeks students with good attendance record who show the skills needed to handle working while attending school. The Georgia Department of Education suggests no more than 5 absences from school and no less than 5 tardies, although schools are allowed to set their own admission rules²⁹.

After students are accepted into YAP, their parents must be notify and agree to enroll their child into the program. Additionally, the apprenticeship program administrator, counselors, and school administrators must coordinate to ensure students will be able to meet both their educational and work requirements. Below, this report will address specific courses students must take depending on their career of interest.

Apprenticeship program administrators must develop relationships with industries to ensure they become partners in YAP. Once a company decides to partner with DCPS, they are expected to send a mentor for training and continue to develop a relationship with the administrator. The student, the mentor and the YAP program administrator then sit down to develop a training plan for the student that outlines the tasks they are expected to learn while in the program. Training programs will vary from student to student, and from company to company³⁰. The plan must be approved by the program administrator, the student, the parent and the industry mentor.

Career Clusters and Pathways

Georgia has developed a Program Delivery Team in charge of providing a link of resources for educators to ensure students enrolled in YAP and other work-based programs are prepared to enter their desired work concentration³¹. This allows students to take classes they need to further develop the skills gained in YAP.

²⁶ State of Georgia Department of Education. (2013) *Career Related Educational Manual*. Found in https://www.ctaern.org/WBL_Forms/Sections/Section%2013%20-%20Student%20Admission-Application/flipBook.html?book=Section_13_-_Student_Admission-Application.pdf&pageNumber=1

²⁷ See Appendix 3 for sample Program Application by The Georgia Department of Education

²⁸ See Appendix 4 for sample Teacher Recommendation by The Georgia Department of Education

²⁹ State of Georgia Department of Education. (2013). *Career Related Educational Manual*. Retrieved from https://www.ctaern.org/WBL_Forms/Sections/Section%2017%20-%20Training%20Plans/flip_book_files/TCRE_Manual_2013Section_17_Training_Plans/Section_17_Training_Plans.pdf

³⁰ See Appendix 5 for a Sample Educational Training Plan by The Georgia Department of Education

³¹ Georgia Department of Education. (2013). *Program Delivery Team*. Retrieved from <http://www.gadoe.org/Curriculum-Instruction-and-Assessment/CTAE/Pages/Program-Delivery.aspx>

The Georgia Department of Education has set minimum graduation requirements for all students to graduate from high school. Students enrolled in YAP are expected to take the same courses and use their required electives to take classes that complement the skills they gain in YAP. The requirements are³²:

(iii) **AREAS OF STUDY.**

	Units Required
(I) English/Language Arts*	4
(II) Mathematics*	4**
(III) Science*	4

The 4th science unit may be used to meet both the science and elective requirement

(IV) Social Studies*	3
(V) CTAE and/or Modern Language/Latin and/or Fine Arts	3
(VI) Health and Physical Education*	1
(VII) Electives	4

TOTAL UNITS (MINIMUM) 23

*Required Courses and/or Core Courses

** Students entering ninth grade in 2008-2009, 2009-2010, and 2010-2011 only, who earn credit in Mathematics I and Mathematics II or GPS Algebra and GPS Geometry, along with 2 additional core mathematics courses, will have satisfied the **minimum** mathematics requirements for high school graduation.

Through the Program Delivery Team, they ensure that students enrolled in work-based programs can also take electives that complement their program. These classes can be offered either at a partner post-secondary institution or in a secondary institution³³. The following are career clusters students can choose from while in YAP if students were enrolled after the Fall 2013 semester³⁴:

- Agriculture, Food, & Natural Resources
- Architecture and Construction
- Arts, A/V Technology, & Communications
- Business Management & Administration
- Education and Training
- Energy
- Finance
- Government and Public Administration
- Healthcare Science
- Hospitality and Tourism
- Human Services
- Information Technology
- Law, Public Safety, Corrections, & Security
- Manufacturing
- Marketing
- Science, Technology, Engineering and Mathematics
- Transportation, Distribution and Logistics

³² <http://archives.gadoe.org/documents/doe/legalservices/160-4-2-.48.pdf> page 3

³³ See Appendix 6 for a list of elective classes offered in Georgia based on DC career clusters from this report

³⁴ Georgia Department of Education. (2013). *Career Clusters/Pathways*. Retrieved from <http://www.gadoe.org/Curriculum-Instruction-and-Assessment/CTAE/Pages/CTAE-Georgia-Career-Clusters.aspx>

After students choose their career cluster, students can pick specific pathways that will allow them to pick a career of choice. Georgia recently changed their career clusters to be based on the National Career Cluster Model for all students enrolling after the fall of 2013.

Evaluations

The University of Georgia evaluated the initial implementation of YAP in 1997. At the time of the assessment, not all programs had fully developed and the state was still trying to develop best practices for its implementation. The recommendations from the study included better career guidance and exploration, and the recruitment and participation of employers³⁵. The Department of Education took all of the recommendations in this study. Today's YAP has been carefully coordinated following the best practices recommended and both, recruitment of employers and career guidance have been vastly developed.

In 1999, Clark University of Georgia studied how the implementation of YAP had affected student outcomes. They found that students enrolled in YAP were more likely to pursue further education and training, and they had a clearer view of their career goals³⁶. In addition, it showed that students were satisfied with their participation in the program and their personal development during the program. It highlighted, however, that certain industries like engineering were more likely to be invested in the students than others, and that not a lot of the students remained employed at their original business. The study suggested that the skills learned before entering the on-site work learning was a factor in how invested employers were in their employees development, and that quality employment sites matter for ongoing student employment³⁷.

³⁵ Smith, C. L. (1997). Initial analysis of youth apprenticeship programs in Georgia.

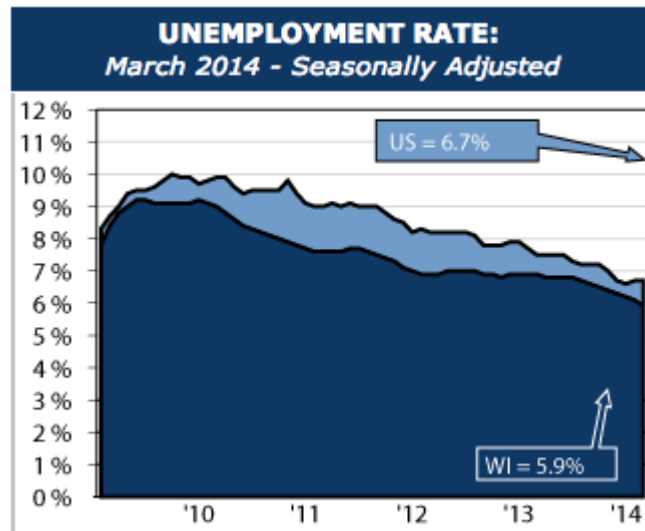
³⁶ Smith, C. L., & Clark, P. J. (1999). Youth Apprenticeship in Georgia: An Assessment of Students. *Journal of Cooperative Education*, 34(1), 7-16.

³⁷ Smith, C. L., & Clark, P. J. (1999). Youth Apprenticeship in Georgia: An Assessment of Students. *Journal of Cooperative Education*, 34(1), 7-16.

Appendix 2: Wisconsin Case Study

The Job Market

According to the U.S. Bureau of Labor Statistics, the unemployment rate for the state of Wisconsin in December 2013 was 6.4%³⁸. This represents a steady decline in the years since 2000³⁹.



Source: [Wisconsin LAUS](#) and [BLS CPS](#)

Further, according to an analysis by Georgetown University's Center on Education and the Workforce, by the year 2018, 61% of all jobs in Wisconsin will require some form of postsecondary education⁴⁰.

Background to Youth Apprenticeship Programs

Wisconsin's Youth Apprenticeship Program was created in 1991 through Wisconsin Act 39 as a school-to-work initiative to prepare students for the workforce and create options for students not planning to attend college. Wisconsin was one of the first states to receive federal funding under the School-to-Work implementation grants of 1994⁴¹. The state's Youth Apprenticeship Program was based on the German apprenticeship model after local business, education, government and industry leaders traveled to the country to learn about their practices⁴². The program concentrates in partnering schools with industry in practical skills training to prepare secondary school students for the workforce.

³⁸ United States Department of Labor, Bureau of Labor Statistics website. Retrieved from <http://www.bls.gov/eag/eag.wi.htm>

³⁹ Wisconsin WORKnet website. Retrieved from <http://worknet.wisconsin.gov/worknet/whatsnew.aspx>.

⁴⁰ Center on Education and the Workforce, Georgetown University. State-Level Analysis. Retrieved from <http://cew.georgetown.edu/jobs2018/states/>

⁴¹ Scribner, Jay et al., 1998. Youth Apprenticeship Experiences in Wisconsin: A Stakeholder-Based Evaluation. *High School Journal*, 00181498, Oct/Nov98, Vol. 82, Issue 1.

⁴² Bednarek, D. I., & of The, J. s. (1991, Jul 16). Tour to focus on german work system group will gather information to form youth apprenticeship program in wisconsin. *Milwaukee Journal*. Retrieved from <http://search.proquest.com/docview/333479894?accountid=8285>

In 2013, Wisconsin Governor, Scott Walker, funded youth apprenticeships in the state at a level of \$1.86 million to be distributed to 31 regional apprenticeship associations. This increased the funding to the program by \$2.6 million from the year before when the program served 1,900 students⁴³. Wisconsin's Youth Apprenticeship Program is a one- or two-year program, depending on the course of study, that provides paid work experience and training to high school juniors and seniors. The program combines classroom instruction with workplace learning to prepare students for further training in their chosen industry or for postsecondary education.

Stakeholders

The key stakeholders in this program include student participants, employers, the Youth Apprenticeship (YA) Coordinator, Wisconsin's Department of Workforce Development (DWD), and school districts statewide. On a secondary level, parents, educators, and worksite mentors play a supporting role in the student's development and the employer's experience. And at the tertiary level, the community broadly supports student development and benefits from the apprenticeship program when students graduate from high school prepared for the workforce and their place in the community.

Youth Apprenticeship Coordinator

The Youth Apprenticeship Coordinator acts as a central point of contact for schools, employers, and students and providing program development, recruitment, monitoring, and evaluation functions to all other stakeholders.⁴⁴

Department of Workforce Development

The DWD is the agency responsible for administering the YAP and awarding the grants for its implementation to individual school districts.

School Districts

School districts are responsible for program coordination at the district level and providing a liaison among school staff, students, parents, community organizations, and the regional YA coordinator. School district staff also assists with student recruitment and monitoring academic progress and graduation status of participating students⁴⁵.

Worksite Mentor

The worksite mentor is a skilled employee who is responsible for training and supervising the student apprentice and evaluating his/her performance and progress over the course of the apprenticeship.

⁴³ Willms, M. (2013, Jul 26). Wisconsin gov. walker boosts money for apprenticeships. *The Daily Reporter*. Retrieved from <http://search.proquest.com/docview/1416471910?accountid=8285>

⁴⁴ Wisconsin Youth Apprenticeship Program Operations Manual (December 2008). Retrieved from http://dwd.wisconsin.gov/dwd/publications/dws/youthapprenticeship/detw_9654_p.pdf

⁴⁵ Ibid

Implementation

Local partnerships, formed for the purpose of implementing or continuing a YA program, must apply each year to the DWD for grant funding. Partnerships are defined as:

- one or more school districts; or
- any combination of one or more school districts, other public agencies, nonprofit organizations, individuals or other persons, who have agreed to be responsible for implementing and coordinating a local YA program⁴⁶

In order to be eligible for grant funding, partnerships must:

- Limit the cost per student to a maximum of \$900 per youth apprentice (total grant amount divided by the number of students to be enrolled);
- Provide at least 50% matching funds;
- Submit for a grant of no less than \$10,000 and 11 students;
- Have the capacity to deliver the program in accordance with the DWD YA Program Operations Manual, and all requirements included in the RFP; and
- Designate a regional and/or local coordinator.⁴⁷

Steering committees from each grantee are charged with ensuring that students have information about the youth apprenticeship program. Students can begin YAP in June of their sophomore year of high school and are allowed to complete the second year of the program after high school graduation. In recruiting students for the apprenticeship program, grantees are encouraged to focus specifically on minority and “at-risk” students, as well as students with disabilities. Additional emphasis is placed on efforts to recruit students into “nontraditional opportunities”.

A 1995 evaluation of Wisconsin’s YAP in printing found that students involved in the apprenticeship program were 34 percentage points more likely to be employed in the printing field than their counterparts from co-op programs. YAP participants were also found to be earning higher wages and were more likely to have full-time—as opposed to part-time—positions compared to their peers from co-op programs or those who took printing classes.⁴⁸

⁴⁶ Ibid

⁴⁷ Ibid

⁴⁸ Orr, Margaret Terry (1995). Wisconsin Youth Apprenticeship Program in Printing: Evaluation 1993-1995, Findings in Brief and Executive Summary. Retrieved from <http://www.aypf.org/publications/compendium/C1S19.pdf>.

Program Specifics

	Minimum Requirements
Eligibility	<ul style="list-style-type: none"> Any student enrolled in public or private high school or approved GED or High School Equivalency program or registered in a home-based high school program Students must have a satisfactory performance on the WI Pupil Assessment System or demonstrate ability to learn required skills Students must have participated in career exploration/guidance activities
Hours	1 year apprenticeship: <ul style="list-style-type: none"> 188 hours of technical instruction 450 hours of work-based learning 2 year apprenticeship: <ul style="list-style-type: none"> 360 hours of technical instruction 900 hours of work-based learning
Certificates/Credit	<ul style="list-style-type: none"> Secondary school credit State Certificate of Occupational Proficiency
Tasks	<ul style="list-style-type: none"> Tasks list
Wages	<ul style="list-style-type: none"> Fair market wages
Evaluations	<ul style="list-style-type: none"> On-site evaluation of student performance conducted by worksite mentor

Each program area has learning objectives set forth by local consortiums⁴⁹. These skills are taught in the Related Technical Instruction, whether in the workplace or in a classroom setting. Each program area has a Skills Standards Checklist, a roster of skills considered essential in each area⁵⁰.

Students work with assigned mentors in workplace settings in their chosen areas, learning the skills designated in each area's Skills Standards Checklist. In an evaluation conducted early in the program, feedback from students indicated that the workplace mentor was an important part of the apprenticeship experience, although the quality of mentorship varied across student experiences⁵¹.

A Level One apprenticeship is a one-year unit, which takes place in a student's junior or senior year of high school. Students must complete a minimum of 450 hours of work-based learning and two semesters of related classroom instruction.

A Level Two apprenticeship is a two-year unit over the course of a student's junior *and* senior years of high school. This program requires a minimum of 900 hours of work-based learning and four semesters of related classroom instruction.

⁴⁹ See Appendix 7 for more information about the program learning objective

⁵⁰ See Appendix 8

⁵¹ See Appendix 8

A minimum of 180 hours—or two semesters—of technical instruction must be completed in the classroom for each one year of the apprenticeship program, to coincide with 250 of the work hours. Instruction may be offered by the employer, the school district, a technical or community college or university, or instructors qualified by the Youth Apprenticeship Program. Additionally, the student must receive high school credit toward graduation for the technical instruction.

In order to be eligible for participation in the Youth Apprenticeship Program, students must be enrolled in a public or private high school or approved GED or High School Equivalency Degree (HSED) program, or be registered in a home-based high school program. Students must also perform satisfactorily on the Wisconsin Pupil Assessment System or demonstrate the ability to learn the required skills, and they must have participated in “career exploration, guidance and/or education activities, which allow them to make an informed choice about their chosen career area.”⁵²

⁵² State of Wisconsin Department of Workforce Development website
https://dwd.wisconsin.gov/youthapprenticeship/st_participation.htm

Appendix 3: Georgia Application Packet



Work-Based Learning Manual
Revised 2013

Sample Work-Based Learning Program Application Form

Personal Data

Full Name: _____ Grade: _____

Address: _____ Home phone: _____

Cell phone: _____

Birth Date: _____ Social Security #: _____

Hobbies: _____

Activities: Athletics: _____ School: _____

Community: _____ Other: _____

Family Background

Father's Name: _____ Occupation: _____

Mother's Name: _____ Occupation: _____

With whom do you primarily reside? Father ___ Mother ___ Father and Mother ___

Other Guardian ____: Give name and relationship: _____

Work Experience

List previous work experience (starting with the most recent and working backwards):

Job Title	Employer (Name of Firm)	Dates	Reason for leaving
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Are you available for summer employment? Yes ___ No ___

Georgia Department of Education
Dr. John D. Barge, State School Superintendent
July 2013 • Page 13-7
All Rights Reserved



Could you drive to work? Yes ___ No ___ If no, do you have transportation? Yes ___ No ___

Education

Please give your class schedule below:

Period	Subject	Teacher	Room
1	_____	_____	_____
2	_____	_____	_____
3	_____	_____	_____
4	_____	_____	_____
5	_____	_____	_____
6	_____	_____	_____
7	_____	_____	_____
8	_____	_____	_____

What is your overall grade point average?
4.0 to 3.0 ___ 2.99 to 2.00 ___ 1.99 to 1.00 ___

Are you on track for graduation? Yes ___ No ___ (If no, explain)

List three (3) teachers who are familiar with your scholastic and work performance that you would ask to recommend you for this work-based learning program:

1. _____
2. _____
3. _____

Career Interest

How did you learn about this work-based learning program? _____

Why do you want to enroll in this work-based learning program? _____

What kind of career do you envision for yourself in the future? _____



Do you prefer to work with (check one): your hands _____ machines _____ people _____

Given the opportunity to work for any company in this community, which company would you choose and why? _____

What do you plan to do after high school graduation? _____

What are your future education plans? _____

What would you like to be doing five years from now? _____

Writing Sample and Transcripts

Attach a one-page, handwritten essay to this application that describes your career objectives, previous work experiences, and special skills that you can bring to a company that chooses to hire you as a result of participation in this program. In addition, describe the benefits that you expect to gain for yourself, if selected. Please write carefully and legibly.

Also, attach a copy of your high school transcripts to this application. Your transcripts can be obtained from the guidance office.

Certification

I certify that I have completed the above application form after careful consideration. If I am accepted for this work-based learning program, I will take advantage of every opportunity to improve my skills and efficiency in the classroom and the world of work.

Signature of Student: _____

Date: _____

Appendix 4: Georgia Teacher Recommendation Form



Work-Based Learning Manual
Revised 2013

Sample Teacher Recommendation Form

CONFIDENTIAL *TEACHER* RECOMMENDATION FORM

Work Based Learning programs are an extension of college and career pathways. The WBL placement exposes students to a wide range general workplace knowledge and competencies, with the goal being to better prepare students for future opportunities. The program is voluntary, and designed for a group of selected students entering their junior/senior year. The student listed below has applied to participate in *Work Based Learning*. Please assist us by completing this form and returning it to the school *Work Based Learning Coordinator* as quickly as possible. Thank you.

Student's Name _____ Student ID # _____

Students: Fill in name and ID # and give form to your reference

Please check in the appropriate column the factors for which you have adequate information for appraisal.

	GOOD	FAIR	POOR
1. Ability to follow instructions			
2. Social skills (gets along well/respect for others)			
3. Demonstrates dependability			
4. Self-motivated			
5. Demonstrates responsibility (directs energies toward tasks)			
6. Demonstrates enthusiasm in performing assigned tasks			
7. Strives for excellence			
8. Punctual			
9. Mentally alert (organization skills/problem-solving skills)			
10. Demonstrates proper etiquette and manners			
11. Personal appearance/grooming			
12. Demonstrates integrity/honesty			
13. Demonstrates optimism and self-respect			

Georgia Department of Education
Dr. John D. Barge, State School Superintendent
July 2013 • Page 13-10
All Rights Reserved

Appendix 5: Georgia Sample Educational Training Plan



Work-Based Learning Manual
Revised 2013

Sample Educational Training Plan

Job Title: Engineering Electronic Assembly **Program Area:** Engineering, Drawing & Design

Student Name: John Doe **School:** CTAE High School
Type of Work-Based Learning Placement: Apprenticeship
Employing Company Name: ABC Architectural Firm
Employing Company Address: 100 first Street
Employing Company Supervisor/Mentor: Mr. Smith
Supervisor/Mentor Contact Numbers: Phone: 555-1212 Cell: 555-1212 Fax:
Occupational Goal: Electrical Engineer
Completed Coursework Related to Placement: Engineering and Technology, Engineering Drawing and Design

Enter the date that the student reaches the following level of competency:
 1 = Very little or no skill; Needs close supervision to perform this task.
 2 = Moderately competent; Some knowledge, but requires some supervision to perform this task.
 3 = Proficient; Can perform this task with little or no supervision.
 Student competency on all tasks should start at level 1 or 2 and be documented as 3 by the end of the experience.

	3	2	1
Task 1 – Develop & maintain plant layouts.			
Task 2 – Develop & maintain all facility safety layouts to designated assembly area, emergency equipment locations, evacuation shelter locations, fire detection systems, hazardous waster storage, fire extinguisher systems, visitor safety brochure.			
Task 3 – Maintain layouts of a facility airlines, water lines, and inside/outside lines.			
Task 4 – Assist in design and provide detailed drawings of all tool drawings and maintains tool control files.			
Task 5 – Provide square footage to finance department on all departments located on the production floor and available floor space.			
Task 6 – Conduct tasks in accordance with applicable health, safety, quality, and environmental regulations (State/Federal Laws, ISO 9001, SMS 18001 Etc.) as well as company Policies and Procedures.			

List any potential health/safety conditions related to this specific work assignment (Indicate NONE if no such conditions have been identified): _____

Special requirements expected of the student. _____

 Student Signature Date Supervisor Signature Date

 Coordinator Signature Date Parent Signature Date

NOTES:

Appendix 6: Georgia Curriculum Electives

A.

Marketing
Marketing Principles
Marketing and Entrepreneurship
Marketing Management
Promotion and Professional Sales
Marketing Communications Essentials
Fashion, Merchandising and Retailing Essentials
Advanced Fashion, Merchandising and Retailing

B.

STEM
Advanced Math Decision Making
Oceanography
Genetics
Scientific Research III or IV
World Geography

C.

IT
Technology and Society
Advanced Math Decision Making
Astronomy
Literary Types/Composition
Oral/Written Communication

D.

Health
Advanced Math Decision Making
Math of Finance
Microbiology
Biochemistry
Organic Chemistry
Social Research III or IV
Psychology

E.

Hospitality
Literary Types/Composition
Journalism
Oral/written Communication
Speech
Calculus
Math of Finance
Humanities

F.

Public Safety
Human Anatomy and Physiology
Epidemiology
Humanities
Psychology
Sociology
Disaster Preparedness

Appendix 7: Wisconsin Youth Apprenticeship Program Areas

- **Agriculture, Food & Natural Resources**
 - The production, processing, marketing, distribution, financing, and development of agricultural commodities and resources including food, fiber, wood products, natural resources, horticulture, and other plant and animal products/resources.
 - One-year units:
 - Animals
 - Animal Basics
 - Small Animal / Vet Assistant
 - Plants
 - Plant Basics
 - Crops
 - Greenhouse/Floral
 - Landscaping
 - Environmental Systems
 - Water Resources

- **Architecture and Construction**
 - Careers in designing, planning, managing, building and maintaining the built environment.
 - One-year units:
 - Graphic Design and Pre-Press
 - Press and Post-Press

- **Arts, A/V Technology and Communications**
 - Designing, producing, exhibiting, performing, writing, and publishing multimedia content including visual and performing arts and design, journalism, and entertainment services.
 - One-year units:
 - Graphic Design and Pre-Press
 - Press and Post-Press

- **Finance**
 - Planning, services for financial and investment planning, banking, insurance, and business financial management.
 - One-year units:
 - Accounting Services Basic
 - Accounting Services Advanced
 - Banking Basic
 - Banking Advanced
 - Insurance Services

- **Health Science**
 - Planning, managing, and providing therapeutic services, diagnostic services, health informatics, support services, and biotechnology research and development.
 - One-year units:
 - Medical Office
 - Ambulatory/Support Services
 - Dental Assistant
 - Medical Assistant
 - Nursing Assistant
 - Pharmacy Technician

- **Hospitality, Lodging and Tourism**
 - Hospitality & Tourism encompasses the management, marketing and operations of restaurants and other food services, lodging, attractions, recreation events and travel related services.
 - One-semester units:
 - Food & Beverage - Dining Area
 - Food & Beverage - Kitchen
 - Lodging - Front Office
 - Lodging - Housekeeping
 - Reservations & Tour/Activity
 - Maintenance & Grounds
 - Meetings & Events
 - Marketing & Sales I
 - Marketing & Sales II
 - Management I
 - Management II

- **Information Technology (IT)**
 - Building Linkages in IT Occupations Framework: For Entry Level, Technical, and Professional Careers Related to the Design, Development, Support and Management of Hardware, Software, Multimedia, and Systems Integration Services.
 - One-year units:
 - Info Technology Essentials Unit
 - Hardware Unit
 - Software Unit
 - Web & Digital Media Unit

- **Manufacturing**
 - Planning, managing and performing the processing of materials into intermediate or final products and related professional and technical support activities such as production planning and control, maintenance and manufacturing/process engineering.
 - One-year units:
 - Assembly and Packaging
 - Manufacturing Processes

- Machining
 - Welding
 - Production Operations Management
 - Basic Industrial Equipment
 - Advanced Industrial Equipment
- **Science, Technology, Engineering & Math (STEM)**
 - Planning, managing, and providing scientific research and professional and technical services (e.g., physical science, social science, engineering) including laboratory and testing services, and research and development services.
 - One-year units:
 - Engineering and Technology
 - Engineering Drafting
 - Mechanical/Electrical Engineering
 - Civil Engineering
 - Science & Math
 - Bioscience Lab Foundations
 - Bioscience Applications
- **Transportation, Distribution & Logistics**
 - Planning, management, and movement of people, materials, and goods by road, pipeline, air, rail and water and related professional and technical support services such as transportation infrastructure planning and management, logistics services, mobile equipment and facility maintenance.
 - One-semester units:
 - Auto Collision
 - Collision Repair Basics
 - Non-structural Analysis & Repair
 - Painting & Refinishing
 - Damage Analysis & Electrical Repair
 - Auto Technician
 - General Auto Service
 - Auto / Light Truck Systems
 - Diesel Technician
 - Diesel Technician Systems
 - Logistics / Supply Chain Management
 - Planning & Purchasing Unit
 - Inventory Management & Production
 - Storage & Warehousing
 - Distribution & Transportation Operations

Career Cluster #1

Law, Public Safety & Security



Course of Study

Students at Anacostia Senior High School already have the option to enroll in the Law, Public Safety & Security CTE cluster. These students take Foundations in Law and Justice in the 10th grade, Foundations in Law Enforcement in the 11th grade, and Criminal Justice System and Contemporary Police Systems in the 12th grade, with both high school and college credit available for the 11th and 12th grade courses.

Potential Career Paths

- Lawyer or paralegal
- Corrections Officer
- Public Safety Officer
- Criminal Justice System Analyst

Potential industry partner: **Hogan Lovells**

- A leader in data privacy law and public policy
- 1,004 local employees
- In addition to their Washington, D.C. and London headquarters, they have more than 40 offices worldwide.
- Vault rated them the #7 law firm to work for in Washington, D.C.
- Hogan Lovells already uses apprentices in their London offices.

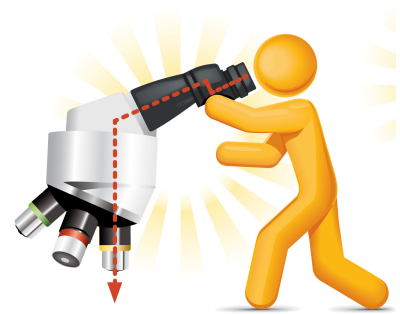
Mean annual salary for paralegals and legal assistants in D.C. is \$73,050. Lawyers make \$162,800 on average. Mean salary for police officers in D.C. is \$69,420 a year.

(Source: BLS.gov, May 2013 State Occupational Employment and Wage Estimates)

Career Cluster #2

Science, Technology, Engineering & Math

STEM



Course of Study

- Advanced Math Decision Making
- Oceanography
- Genetics
- Scientific Research
- World Geography

Relevant Skills

- Apply engineering principles
- Interpret technical drawings
- Use measuring devices accurately
- Organize databases, files, & drawings
- Reproduce documents & plans
- Use engineering drafting software
- Develop 3D view models
- Dimension drawings
- Apply lettering & basic annotation to drawings

Potential industry partner:

Orbital Sciences Corporation

- Industry leader in small and medium class space and rocket systems
- Provides engineering, production and technical services for NASA, Department of Defense and academic space programs
- 1,900 local employees
- 3,600 total employees
- Located in Dulles, Virginia
- Vibrant internship program with competitive wages

Mean annual wages in D.C.

- Clinical Lab Technicians - \$52,760
- Civil engineers - \$85,070
- Electrical engineers - \$108,200
- Chemical Technician - \$44,410



Career Cluster #3

Information Technology



Potential Career Paths

- Network Analyst, Software Engineer, Systems Admins, Computer Security, Network Installation & Support
- This track prepares students for entry-level IT occupations related to the Design, Development, Support and Management of Hardware, Software, and Multimedia.

Potential industry partner: **IBM**

- IBM currently has a strong intern program, which gives students the opportunity to substantively collaborate with scientists at the bleeding edge of emerging technologies.
- Employs over 1,000 workers in the Washington, D.C. metro area in a wide range of IT-related positions

Computer Network Support Specialists in the D.C. area had a mean annual salary of \$80,530 in May 2013.

Course of Study

- Technology and Society
- Advanced Mathematics
- Software Programming
- Literary Composition
- Oral Communication
- Computer Networks

Career Cluster #4

Hospitality



Potential Careers:

- Chef
- Head Cooks
- Hotel Manager
- Catering Manager
- Events Coordinator
- Guest Service Agent

Average annual salary for Chefs and Head Cooks in the DC area was \$60,590 in May 2013, according to BLS

Potential industry partners:

Modus Hotels

- Current partnership with DCPS
- Third-party funding

DC Central Kitchen

- DCPS Grantee for school food initiative
- Catering program

Course of Study

Suggested courses include:

- Calculus
- Math and Finances
- Written and Oral Communication
- Speech

Career Cluster #5

Media & Graphic Design



Potential Career Paths:

- Web Developer
- Desktop Publisher
- Industrial Designer
- Advertising Executive
- Marketing Manager
- Promotions

Median hourly wages in D.C. for the Arts, Design and Media field: \$36.33
(BLS, May 2013 data)

Potential industry partner: **U.S. Congress**

- Communications Directors manage and coordinate activities, including media contacts, for a Congressman and their office. Each Member and Committee employs both Directors and Staff that develops and implements media, communications, and public relations strategies
- Employs about 15,000 local employees
- Offices regularly employ both paid and unpaid interns in the press department.
- Average starting salary in Media is approximately \$40,000.

Course of Study

- Marketing Principles
- Entrepreneurship
- Promotions and Sales
- Communication Essentials
- Fashion & Merchandising
- Marketing Management

Career Cluster #6

Health



Potential Career Paths:

- Nurse
- Nursing Assistant
- Community Health Worker
- Health aide

Community health workers in D.C. had a mean annual salary of \$64,750 (BLS, May 2013)

Potential industry partners:

Howard Hughes Medical Institute

- One of the largest medical research nonprofits in the U.S.
- 769 local employees
- Located in Chevy Chase, MD

Henry M. Jackson Foundation for the Advancement of Military Medicine

- 1,779 local employees
- Located in Bethesda, MD

Course of Study

- Advanced Math Decision Making
- Math of Finance
- Microbiology
- Biochemistry
- Organic Chemistry
- Social Research III or IV
- Psychology