

Appendix C

CTAE Program Data

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CTE Internal Program Evaluation Portfolios

The CTAE program conducts an internal program evaluation on a six-year cycle for each of its instructional areas. Two cycles of this evaluation process were completed in 2002 and 2009, and a third cycle will be completed in spring 2017.

The internal evaluation requires teachers to submit evidence to be rated against a rubric based on *Ohio's Quality Program Standards for Career-Technical Education Programs*, which were developed by the National Dissemination Center for Career and Technical Education at Ohio State University, and are housed at the Ohio Department of Education¹. In prior years, hard copies of evidence were collected in crates. In 2010-11, the CTAE Office transitioned to Taskstream, a digital portfolio system that allows teachers to upload evidence electronically.

The CTAE Office recruits volunteer external reviewers annually to score submitted evidence. The external review team consists of CTE supervisors and teachers from other school systems, APS CTE retirees, college and university representatives, citizens' advisory committee members, and business professionals. Evaluators rate each portfolio subsection on a scale of 0 (no evidence of implementation) to 3 (exemplary), and provide open-ended feedback indicating program's strengths, challenges, and areas needing improvement. Results are shared with school staff. Taskstream scores are also used for federal monitoring reports.

An additional goal of these portfolio assessments is to serve as a resource for districtwide professional development, curriculum updates, and infrastructure development; and to facilitate collaboration among teachers within a CTE program area. CTE program areas that receive an Exemplary Program Evaluation status are eligible to be nominated for the Virginia Department of Education's Creating Excellence Awards.

The CTAE Office provided the Office of Planning and Evaluation with score reports generated by Taskstream. Average scores for select sections of the portfolios that address quality of instruction are included in this evaluation. **Table 1** shows the selected sections along with a description of the required documentation for each focus area.

Table 1: Portfolio Sections and Required Documentation

Portfolio Category	Focus Area	Description	Indicator Number	Required Documentation
Curriculum and Pathways	SOL integrated lessons	All CTE courses have the core content Standards of Learning (SOL) aligned to the CTE course competencies. When practical, CTE teachers incorporate the related SOLs within their lesson plans.	A3.3a.21	Provide two lesson plans that support core Virginia Standards of Learning (SOL).

¹ <http://education.ohio.gov/Topics/Career-Tech/CTE-Program-Review>

Portfolio Category	Focus Area	Description	Indicator Number	Required Documentation
	Career pathways	Within each of 16 career clusters, there are multiple career pathways that represent a common set of skills and knowledge, both academic and technical, necessary to pursue a full range of career opportunities within that pathway, ranging from entry level to management and including technical and professional career specialties.	A.3.3b.23	Evidence of career pathway for this program that aligns CTE curriculum offerings at middle school, high school, and postsecondary programs (from local plan)
	Employability skills	Employability skills are general skills that are necessary for success in the labor market at all employment levels and in all sectors.	A3.3b.22 a	Explain how employability skills are addressed in this program.
Technology Use in Instruction	Instructional technologies	The use of current technology in instruction to provide students the technical knowledge and skills needed to prepare for industry careers.	A.2.2a.13	Provide three examples of how technology is used in the classroom, and explain how students are using state-of-the-art technology to prepare for industry.
Goals and Objectives	Industry trends and practices	Current research and implementation practices that enhance and supplement program development, teacher professional development, teaching, and learning.	A1.1b.5	Evidence of current and future industry trends and practices in program area and evidence of teachers' research in program area
	Competencies	A prescribed set of knowledge and skilled-based tasks that are taught within all CTE courses.	A1.1a.4	Provide an electronic link(s) to the current curriculum frameworks, and an electronic link(s) to the current curriculum competency lists and Can Do
Partnership and Collaboration	Partnership involvement	Program collaborations with internal and external community and business partners	A5.5a.31	Program collaborates with business, industry, labor and community agencies.

Figure 1: Portfolio Scores for All Programs on Selected Criteria

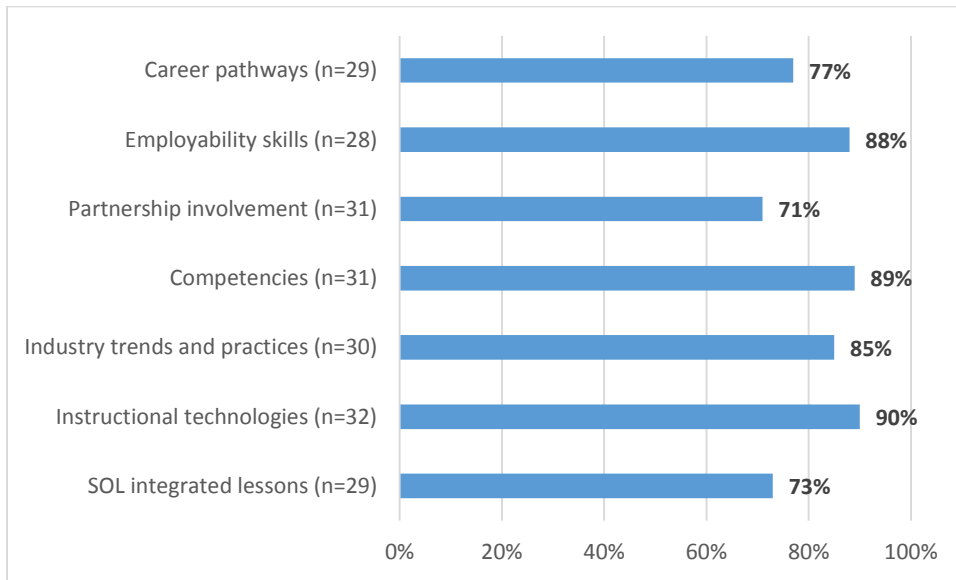


Figure 2: Portfolio Scores for Business and Information Technology Programs on Selected Criteria

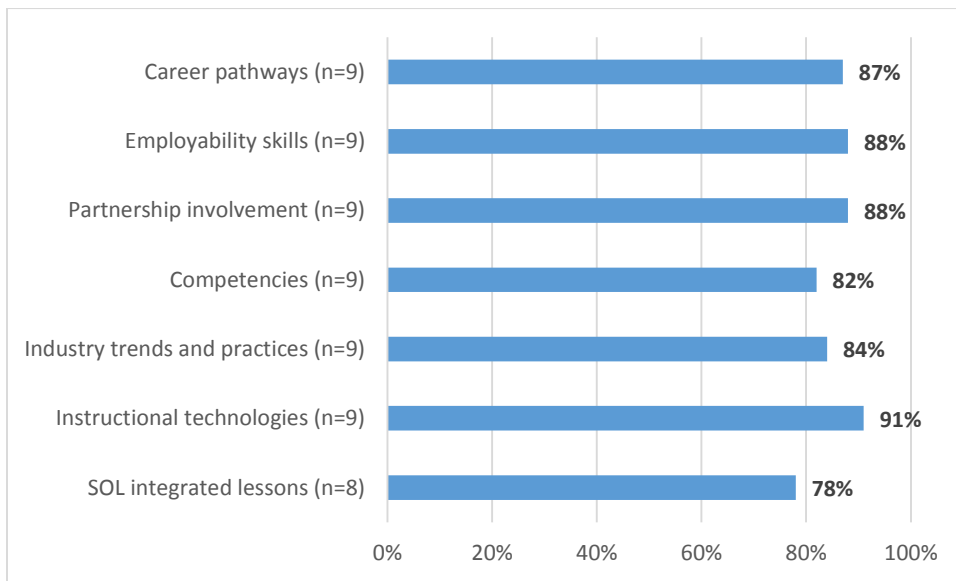
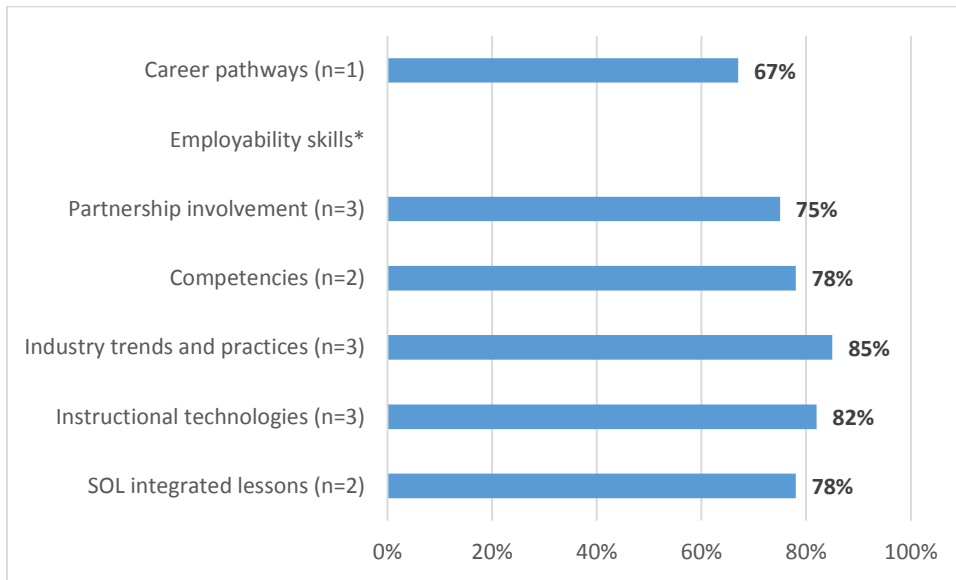
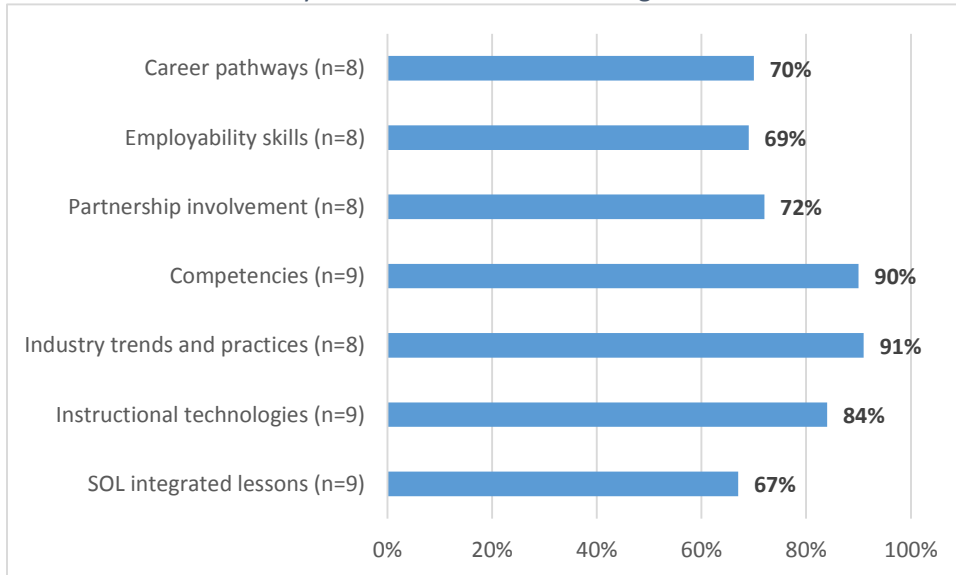


Figure 3: Portfolio Scores for Computer Science Programs on Selected Evaluation Criteria



*Employability skills was not completed by this program area

Figure 4: Portfolio Scores for Family and Consumer Science Programs on Selected Evaluation Criteria



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Figure 5: Portfolio Scores for Technical Education Programs on Selected Evaluation Criteria

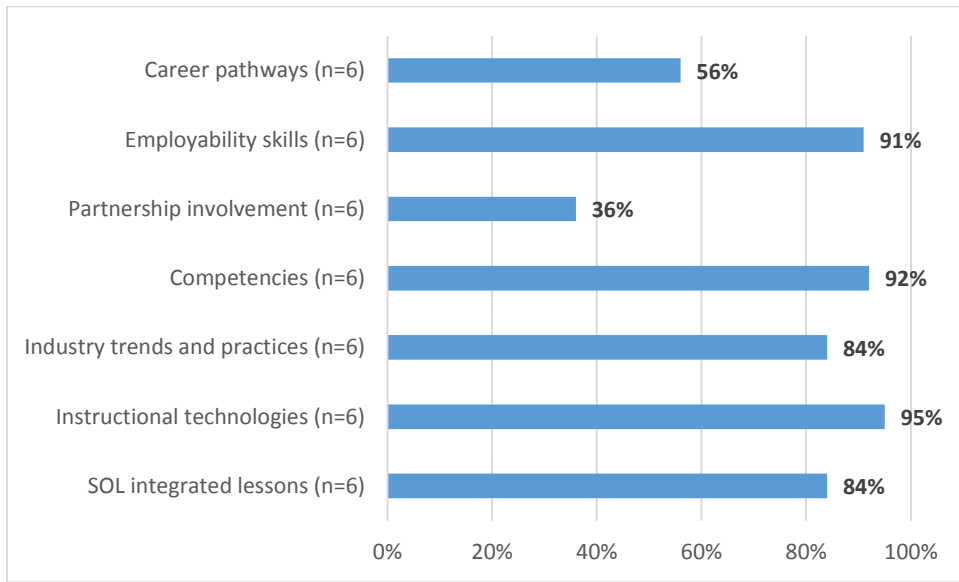
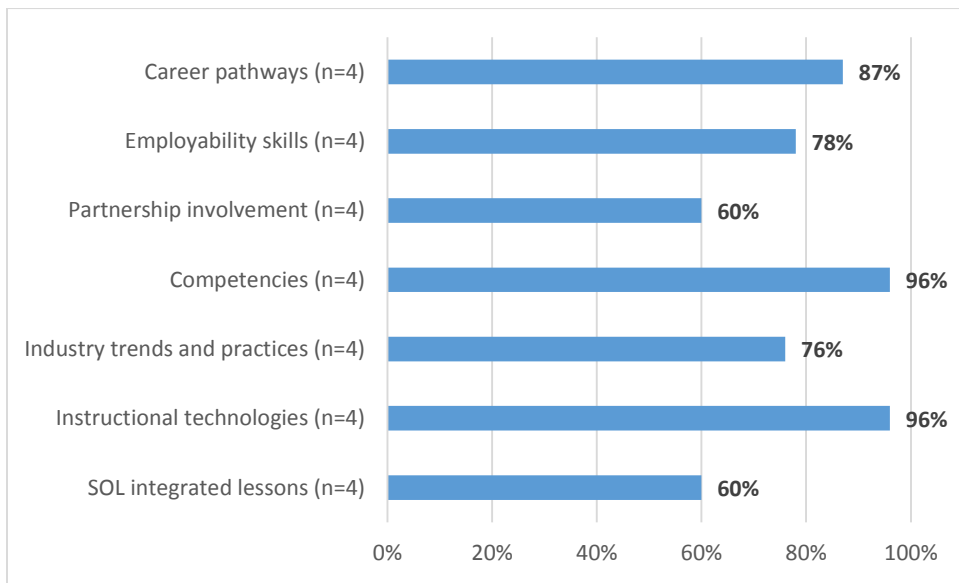


Figure 6: Portfolio Scores for Trade and Industrial Programs on Selected Evaluation Criteria



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Table 2: Portfolio Scores for Business and Information Technology Programs on Selected Criteria by School

	School								
	A	B	C	D	E	F	G	H	I
SOL integrated lessons	56%	94%	100%	75%	33%	NA	100%	73%	92%
Instructional technologies	89%	83%	100%	100%	56%	100%	98%	100%	92%
Industry trends and practices	78%	61%	92%	50%	94%	100%	100%	94%	89%
Competencies	78%	64%	100%	81%	33%	100%	96%	100%	83%
Partnership involvement	100%	83%	100%	40%	83%	100%	100%	83%	100%
Employability skills	100%	94%	83%	25%	33%	100%	100%	92%	100%
Career pathways	89%	44%	100%	83%	67%	100%	100%	100%	100%

Table 3: Portfolio Scores for Computer Science Programs on Selected Evaluation Criteria by School

	School		
	A	B	C
SOL integrated lessons	NA	78%	78%
Instructional technologies	89%	78%	78%
Industry trends and practices	89%	78%	89%
Competencies	78%	78%	NA
Partnership involvement	57%	100%	67%
Employability skills	NA	NA	NA
Career pathways	NA	NA	67%

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Table 4: Portfolio Scores for Family and Consumer Science Programs on Selected Evaluation Criteria by School

	School								
	A	B	C	D	E	F	G	H	I
SOL integrated lessons	75%	100%	100%	11%	100%	58%	100%	56%	0%
Instructional technologies	92%	100%	100%	67%	100%	58%	100%	89%	50%
Industry trends and practices	100%	100%	100%	100%	92%	NA	89%	100%	44%
Competencies	100%	100%	89%	100%	100%	67%	100%	100%	56%
Partnership involvement	92%	89%	92%	11%	91%	NA	78%	100%	22%
Employability skills	96%	89%	100%	33%	83%	NA	0	89%	61%
Career pathways	83%	100%	100	22%	100%	NA	0	78%	78%

Table 5: Portfolio Scores for Technical Education Programs on Selected Evaluation Criteria by School

	School					
	A	B	C	D	E	F
SOL integrated lessons	89%	78%	61%	100%	89%	89%
Instructional technologies	89%	100%	100%	100%	89%	89%
Industry trends and practices	69%	89%	89%	100%	69%	89%
Competencies	78%	100%	100%	94%	78%	100%
Partnership involvement	0%	44%	28%	89%	0%	56%
Employability skills	89%	67%	100%	100%	89%	100%
Career pathways	33%	56%	22%	89%	33%	100%

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Table 6: Portfolio Scores for Trade and Industrial Programs on Selected Evaluation Criteria by Program

	Program				
	A	B	C	D	E
SOL integrated lessons	44%	44%	78%	100%	33%
Instructional technologies	100%	100%	89%	100%	89%
Industry trends and practices	67%	100%	56%	100%	56%
Competencies	100%	100%	89%	92%	100%
Partnership involvement	89%	44%	33%	100%	33%
Employability skills	78%	100%	78%	92%	44%
Career pathways	44%	100%	89%	100%	100%

PROGRAM EVALUATION STANDARDS

PROGRAM OVERVIEW (required for program background information, but not evaluated)

Description: Provide an overview on the program, and include the following data per staff member: Names of staff, subject(s) taught, teaching credentials, endorsements, licensures, certifications, affiliation with professional organizations, awards and recognitions, educational projects, and publications.

Name of School:

Provide links with descriptive captions to supporting documentation, if applicable

Overview of School and Demographics:

Provide links with descriptive captions to supporting documentation, if applicable

Name of Program:

Provide links with descriptive captions to supporting documentation, if applicable

Teacher Name(s) and Biography (ies):

Provide links with descriptive captions to supporting documentation, if applicable

SECTION A PROGRAM QUALITY

CRITERION 1 GOALS AND OBJECTIVES

Criterion A.1 Learning goals and objectives are clear, challenging, and measurable.

A.1.1a. Goals and objectives are clearly stated, realistic, and measurable.

A.1.1a.1 Write a description of the program

A.1.1a.2 Provide an electronic course syllabus for each course offered in the program

A.1.1a.3 Goals and Objectives **what are the program's goals and objectives?**

A.1.1a.4 Competencies/Framework (link to VERSO)

A.1.1b. Goals and objectives are based on current research and successful practice.

A.1.1b.5 Evidence of current and future industry trends and practices in program area

A.1.1b.6* List enhancements, supplements, and additional curriculum developed for this program (textbooks and other media)

Discuss enhancements, supplements, and additional curriculum developed for the program.

A.1.1b.7 Evidence of interacting with industry to ensure program reflects current trends (speakers, advisory council, members input, etc.)

A.1.1c. Goals and objectives reflect high expectations for learner achievement.

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A.1.1c.8 * Copy of goals and objectives with rigor and high expectations (highlighted)

How do the program's goals reflect high expectations for student achievement?

A.1.1d. Goals and objectives are aligned with the mission and vision of the institution.

A.1.1d.9 Provide vision and mission statements of division, school, and program and explain how they align

Explain how the vision and mission statements of the division, school, and CTAE program are aligned.

A.1.1e. Goals and objectives emphasize higher-order thinking skills and problem solving.

A.1.1e.10* Highlight the goals and objectives that emphasize critical thinking skills and problem-solving.

Examples of completed student assignments from the sample lesson plans

CRITERION 2 ENVIRONMENT

Criterion A.2 The program content aligned with learning goals, is accurate, current, and appropriate for the intended learner population.

A.2.2a. The program is technologically current; provides opportunities for learners to use state-of-the-art technology within their industry area; and reflects the impact of technological advances within each chosen field.

How are students using state-of-the-art technology to prepare for industry?

Provide a written description of the facilities and/or physical classroom/lab environment and the technical status of equipment in the classroom and the equipment replacement cycle

A.2.2a.11 Describe physical classroom/lab setting; description of typical workstation, number of workstations; may include photos

A.2.2a.12 Identify strengths, weaknesses, and plans for classroom/lab improvements

A.2.2a.13 Provide three examples of how technology is used in the classroom

A.2.2b.14a The learning environment reflects a positive climate.

Describe how the program setting is conducive to learning.

A.2.2b.14 Describe how program complies with safety and sanitation requirements (meet OSHA requirements and Internet Safety guidelines, if applicable),

A.2.2c. 15a Curriculum and instruction are culturally and ethnically sensitive, free of bias, and reflect diverse learner interests and participation.

Describe how the curriculum and instructional processes are inclusive of diverse student populations.

Provide links with descriptive captions to supporting documentation, if applicable

A.2.2c.15 Provide three lesson plans showing how different learning styles are addressed. (Highlight examples).

Provide links with descriptive captions to supporting documentation, if applicable

Describe how the teacher differentiates instruction for all learners (demonstrate in teacher evaluation and lesson plans)

- A.2.2c.16** Describe adaptive technology in use, if applicable
- A.2.2c.17** Provide three lesson plans showing accommodations for special education population or sample IEP for this program, if applicable
- A.2.2d.18a The content and instruction emphasize development and understanding of all aspects of industry and the world of work, and include work-based learning experiences.

Describe the kinds of work-based/career learning experiences that are available in the program.

- A.2.2d.18 Provide two -four samples of lessons teaching All Aspects of Industry (Highlight examples.)

CRITERION 3 CURRICULUM AND PATHWAYS

Criterion A.3. The program reflects the vision promoted in recognized academic and occupational standards and by state and national legislation, as appropriate.

- A.3.3a. The program goals, content, and assessments are aligned and integrated with appropriate local, state, and national academic standards.

Explain how the curriculum is aligned to national, state, local and industry standards.

- A.3.3a.19 Curriculum alignment document (provide link to SOL correlation for this program in VERSO)

Analyze SOL data of students in this program compared to other CTE students or school as a whole

- A.3.3a.20* Provide two lesson plans that emphasize Science, Technology, Engineering, and Mathematics (STEM) competencies. (Highlight in lesson plans)
- A.3.3a.21 Provide two lesson plans that support core Virginia Standards of Learning (SOL). (Highlight in lesson plans)

- A.3.3b. 22a The program ensures that students are prepared with academic knowledge and technical skills and are ready to transition into further education and/or the workplace.

Explain how employability skills are addressed in this program.

- A.3.3b.22** Provide dual enrollment agreements with community colleges/universities
- A.3.3b.23 Evidence of career pathway for this program that aligns CTE curriculum offerings at middle school, high school, and postsecondary programs (from local plan)

CRITERION 4 BUSINESS/ INDUSTRY & WORKPLACE READINESS

Criterion 4. The program is aligned with industry standards and validated by Virginia business/industry representatives.

- A.4.4a. The program goals, content, and assessments are aligned and integrated with appropriate state or national occupational or industry skill standards.
- A.4.4a.24* Explain program alignment with national industry or skill standards

A.4.4b. The program is validated by Virginia business/industry representatives.

A.4.4b.25 Identify how local Career and Technical Education Advisory Council, Craft Committee, or other industry representatives were involved with program/curriculum/equipment implementation.

A.4.4c. The program goals, content, and assessments include Virginia's Workplace Readiness Skills and other appropriate employability skills and competencies.

Explain how the program's goals, content and assessments include Virginia Workplace Readiness Skills and other appropriate employability skills and competencies.

A.4.4.c.26 Provide 2-4 lesson plan's that show Virginia's Workplace Readiness Skills lessons are embedded in scope and sequence and lesson plans (highlight in lesson plan)

A.4.4d. The program is certified or recognized by industry, professional, and/or trade associations or state licensing agencies and can lead to postsecondary degrees, industry certifications, licensure, and other recognized credentials.

How has the program been recognized or certified for its contributions to industry.

A.4.4d.27 Describe industry credentials available to students through this program

A.4.4d.28** Copy of program certifications/licensures by industry, if applicable

A.4.4d.29 Teacher's Credentials: Copy of industry certifications(s) or comparable credentials

A.4.4d.30 Teacher's Credentials: Provide evidence of workshops or courses completed in related field or in education in general for last three years

CRITERION 5 PARTNERSHIP AND COLLABORATION

Criterion A 5. Collaborations maintained with internal and external organizations as well as stakeholders are maintained to strengthen the quality and effectiveness of the program.

A.5.5a Strong, visible partnerships with measurable results are established and maintained with business, industry, and community collaborators. Various groups may become involved with the general program and curriculum planning, workplace learning experience development, and program improvement strategies.

How does the program collaborate with business, industry, labor, and community agencies?

A.5.5a.31 Document a minimum of four examples of partnership involvement from the list below. Documentation may include letters of support, meeting agenda, or event summary.

A.5.5b. Partnership agreements designed to address or meet various program goals has been developed and is being implemented effectively.

A.5.5b. There is evidence of support from leaders from within and outside the organization.

How does the school, district, or state leadership support the program?

A.5.5b.32 Provide letters of support from school/division leaders

A.5.5b.33 Provide evidence of awards/recognitions received from school/division.

A.5.5c Collaboration results in articulated and well-developed career pathways at the secondary and post-secondary levels.

How does the program collaborate and/or articulate with postsecondary institutions?

A.5.5c.34 Provide examples of how career pathways and dual credit opportunities are communicated to students.

A.5.5c.35 Provide documentation of collaboration with school counselors/career coaches that supports student academic and career planning.

Describe how the program instructors and students collaborate with other departments

SECTION B EDUCATIONAL SIGNIFICANCE

CRITERION 6 CAREER AND TECHNICAL STUDENT ORGANIZATION (CTSO)

Criterion B.6. The program addresses important individual, societal, and business/industry needs.

B.6.6a. Through approved Career and Technical Student Organization (CTSO), the program prepares learners to become productive citizens, leaders, and lifelong learners.

How has the program helped students become productive citizens?

Describe program participation in CTE student organizations

B.6.6a.36 Complete the CTSO Data Chart

B.6.6a.37 Provide two lesson plans that demonstrate that the CTSO is co-curricular. Highlight in lesson plans.

B.6.6a.38 Provide two examples of CTSO recruitment activities

B.6.6a.39 Provide documentation of community service projects

B.6.6a.40 Provide evidence of teacher serving as a role model through participation in local, regional, state and national CTSO organizations.

B.6.6b **The program contributes to local and regional workforce development and to the community's economic growth and development.**

Explain how this program contributes to workforce development, if applicable.

B.6.6b.41 Provide career outlook or job forecast related to this program

B.6.6b.42 Provide evidence of business, trade association, or parent testimonials

B.6.6b.43** Complete a Coop and Wage Data Chart, if applicable

B.6.6b.44** Provide a copy of a co-op, internship, or training agreement/plan, if applicable

B.6.6b.45** Provide a sample or summary of employer evaluations/surveys

- B.6.6c.** **The program promotes equity and equal access for all learners, including members of special populations and students preparing for non-traditional careers.**
- How are all students held to high expectations for achievement, regardless of their abilities or special needs status?**
- B.6.6c.46** Provide one or more examples of promotions that target nontraditional occupations/enrollment, if applicable
- CRITERION 7 PLANNING & LEADERSHIP**
- Criterion 7 The program contributes to educational excellence for all learners and leads to other positive results or outcomes**
- B.7.7a.** **The program contributes to whole school or systemic reform.**
- B.7.7a.47** Describe how this program participates in school improvement
- B.7.7b.** **The program maintains an atmosphere of mutual respect and high expectations for all learners.**
- B.7.7b.48** The program maintains an atmosphere of mutual respect and high expectations for all learners.
- B.7.7b.49** Provide documentation of extra help/tutoring sessions before, during, or after school
- B.7.7b.50** Provide evidence of home work policy (program or school)
- B.7.7c.** **The program contributes to increases in teacher/faculty knowledge of effective teaching and learning theory and practice.**
- Document professional leadership roles (i.e. curriculum writing, teams, textbook adoption, workshop/course instructor, professional organization leadership)
- B.7.7c.51*** Provide evidence of serving as mentor or supervising teacher to new teacher, student teacher, or career switcher
- B.7.7c.52** Provide evidence of teacher/leader activities (e.g., peer coaching, learning walks, department chairperson, and curriculum development)
- B.7.7c.53**** Provide documentation of National Board for Professional Teaching (NBPTS) Certification, or other degrees, certifications, and endorsements
- CRITERION 8 INSTRUCTION & PROFESSIONAL DEVELOPMENT**
- Criterion 8 The program design is innovative, dynamic, and reflective of current research, and is worthy of replication.**
- B.8.8a.54a** **The program design includes flexible delivery, interdisciplinary collaboration, integration of instructional technologies, and ability to change and adapt to current trends.**
- How has the program design evolved over time to meet students' and industry needs?**
- How do the program's instructional methods reflect current research on teaching and learning?**
- Describe how the program has implemented innovative instructional strategies in the classroom**

- B.8.8a.54** Provide one example of an interdisciplinary/collaborative lesson or project description.
- B.8.8a.55** Provide examples of grants, awards and recognition applied for and/or received
- B.8.8a.56** Provide examples of how instructional technology is used to add rigor and relevance to classroom instructions.
- B.8.8b.** **The instructional methods include authentic instruction and assessment, problem- and project-based learning mentoring, and other practices that develop students' critical thinking skills.**
- B.8.8b.57** Provide three lesson plans that involve students demonstrating critical thinking skills solving problems. Highlight specific examples.
- B.8.8b.58** Provide examples of completed student assignments from the sample lesson plans in indicator 57 above.
- B.8.8b.59** Provide one example of project – or – problem-based learning unit
- B.8.8b.60** Describe three instructional practices resulting from participation in professional development activities.
- B.8.8c.** **Professional development for the faculty and staff addresses identified needs for program improvement.**
- How is professional development (training) aligned to the faculty's needs?
- B.8.8c.61** Provide agendas from professional development or professional learning community within past three years.
- List professional development activities attended by the teacher. Provide descriptions, dates, and best ideas from training and conferences.
- B.8.8c.62** Provide documentation of leading staff development at local, regional, state, or national levels during last three years
- B.8.8c.63*** Provide documentation of service on school, division, state and/or national committees related to program area (during last three years)
- B.8.8c.64*** Provide evidence of published articles
- B.8.8c.65** Provide a copy of most recent professional teaching licensure renew renewal report
- B.8.8d.** **Program design includes emerging green sustainability skills.**
- B.8.8d.66*** Describe green-oriented, CTSO community service or classroom projects.
- B.8.8d.67*** Create a list of green competencies that could enhance program curriculum.
- B.8.8d.68*** Provide one lesson plan that promotes sustainability practices
- B.8.8d.69*** Provide documentation of classroom practices that support sustainability.

SECTION C. EVIDENCE OF EFFECTIVENESS AND SUCCESS

CRITERION 9 ASSESSMENT AND DATA ANALYSIS

Criterion 9 The program makes a measurable difference in learning for all participants.

C.9.9a. Learners demonstrate competency attainment in required academic, technical, and employability skills (Virginia's Workplace Readiness Skills), as evidenced by recognized standards-based assessments.

C.9.9a.70 Complete the student credentialing Data Chart

C.9.9a.71 Provide a sample of a completed student competency records, in addition for the site visit have available for view all updated student compete competency

C.9.9b.72a Learners are able to perform acquired skills as evidenced by licensure, certification, credentialing, proficiency tests, and/or other recognized assessments.

C.9.9c. Students successfully transition into further education or training, the workforce, or military service.

C.9.9c.72. Provide at least three anecdotal student success stories.

C.9.9d. The gap in achievement among groups of students is narrowed.

C.9.9d. 73 Complete the Student Enrollment Data Chart (provided by CTE Office)

C.9.9d. 74 Provide an analysis of disaggregated student enrollment data (three years)

C.9.9d. 75 Complete the Competency Attainment Data Chart

C.9.9d. 76 Provide an analysis of disaggregated competency attainment data (three years)

C.9.9d. 77 Provide an analysis of disaggregated CTE Certification data (three years)

CRITERION 10 PERFORMANCE MEASURES

Criterion 10. The program exceeds identified performance goals.

C.10.10a. Program data show that it exceeds local, state, and federal identified performance measures.

C.10.10a.78* Program exceeds one or more locally determined benchmark standards.

C.10.10a.79* Provide ranking of certifications and credentials for current year as compared to other programs in the school, the school division, and state.

CRITERION 11 EVALUATION

Criterion 11. A systematic evaluation process ensures the program's continuous improvement.

C.11.11a. The program evaluates learner and program performance using valid outcome measures.

C.11.11a. 80* Provide evidence of self-analysis of program (results of local Exemplary Standards Program or other rubric)

C.11.11b. The program solicits external stakeholders' feedback for program improvement.

C.11.11b. 81 Describe how feedback from parents, business, and community is attained and used for program improvement.

C.11.11c. The program solicits learner feedback to improve the program.

C.11.11c. 82 Identify how feedback from students and graduates (completers) is attained and used for program improvement

C.11.11d **The program solicits staff feedback in identifying needs and assessing continuous improvement strategies.**

Provide a description of four program challenges (**limited to one-page narrative**)

C.11.11d.83 Explain how teachers are involved in identifying needs and assessing continuous improvement strategies

C.11.11e. **Formative and summative information is collected and used to improve programs.**

C.11.11e.84 Analyze program data charts and identify program challenges (**limit to one-page narrative**)

Complete an analysis of program data charts to improve the program

C.11.11e.85 Identify three strategies that will be used to address challenges identified in program trend data analysis

CRITERION 12 PROGRAM IMPLEMENTATION

Criterion 12 **The whole program, the process, or significant elements of the program can be successfully implemented, adopted or adapted in other educational settings.**

C.12.12a. **The program has sufficient documentation and specifies the conditions and resources needed for implementation.**

C.12.12a.86 Program has materials including handbook, budget, instructional guides that are clearly developed (*access to all developed program materials during site visit*)

C.12.12b.87 Document presentations made about program to other groups

C.12.12b.88 **The program's best practices are shared proactively and made available for duplication and adaptation in other settings.**

Describe how program's best practices are shared proactively and made available

C.12.12b.88 Provide a description of the best practices of this program (**limited to one page narrative**)

Levels/Criteria	No Evidence of Implementation (0)	Needs Improvement(1)	Achieving(2)	Exemplary (3)	Score/Level
A1.1a.1 Write a description of the program that includes program overview, staffing, vision and mission statements, goals, scope and sequence and program offerings	No program description	Component present, but lacks specifics and details	Component is present, but may not be clear or high quality	Component is documented completely and clearly exceed standards	
A1.1a.2 Provide an electronic course syllabus for each course offered in the program, and a current copy of Program of Studies	No course syllabus or Program of Studies provided	Minimal course syllabi information provided, and no link to the Program of Studies	Electronic syllabi provided for each course, and a printed copy of current Program of Studies	Electronic syllabi provided for each course, and an electronic copy of current Program of Studies that are easily accessible to others.	
A1.1a.3 Goals and Objectives What are the program's goals and objectives?	No program goals in place	Program goals are vague and/or not appropriate for the target population	Program goals are mostly clear and appropriate for the target population	Program goals are clear, challenging, and appropriate for learner	
A1.1a.4 Competencies/Framework (link to VERSO): Provide an electronic link(s) to the current curriculum frameworks (VERSO), and an electronic link(s) to the current curriculum competency lists and Can Do	No links provided to curriculum frameworks	Electronic links provided to some curriculum frameworks and current competency lists	Electronic links provided to each curriculum framework and current competency lists, and/or Can Do	Electronic links provided to all curriculum frameworks, current competency lists, and Can Do	
A1.1b (Goals and Objectives are based on current research and successful practice)					
A1.1b.5 Evidence of current and future industry trends and practices in program area and evidence of teachers' research in program area	No evidence of implementation	At least one example of teachers' research in the program area	Provided two examples of teachers' research in the program area	Provided three or more examples of teachers' research in the program area	

A1.1b.6* List and discuss enhancements, supplements, and additional curriculum developed for this program (textbooks and other media)	No evidence of implementation	At least one example of curriculum enhancements, supplements	Provide two examples of curriculum enhancements, supplements	Provide three or more examples of curriculum enhancements, supplements	
A1.1b.7 Evidence of interacting with industry partners to ensure program reflects current trends (speakers, advisory council, members input, etc.)	No evidence of implementation	At least one example of interacting with partners	Provide two examples of interacting with partners	Provide three or more examples of interacting with partners	
A1.1c (Goals Reflect High Expectations for Learners' Achievement)					
A1.1c.8* Copy of goals and objectives with rigor and high expectations (highlighted) Include: differentiated instruction activities, lesson/unit plans, brochures/pictures/web sites depicting high expectations	No example of how goals and objectives reflect high expectations for learner achievement	At least one highlighted example of how goals and objectives reflect high expectations for learner achievement	Provided two highlighted examples of how goals and objectives reflect high expectations for learner achievement	Provided three or more examples of highlighted how goals and objectives reflect high expectations for learner achievement	
A1.1d (Alignment of Goals and Objectives to Mission and Vision)					
A1.1d.9 Provide vision and mission statements of division, school, and program, and explain how they are aligned. Include: Division vision and mission statements; School vision and mission statements; Program vision and mission statement; Arlington Public Schools' Strategic Plan goals; School Management and Department/Office Management Plans	Component(s) not present.	Vision and/or mission statements of division, school, and program are vaguely stated or without explanation of how they are aligned.	Vision and mission statements of division, school, and program are stated, and they are minimally explained how they are aligned.	Vision and mission statements of division, school, and program are stated, and alignment is comprehensively explained.	

A1.1e.10* (Critical Thinking Skills and Problem-Solving)					
A1.1e.10* Highlight the goals and objectives that emphasize critical thinking skills and problem-solving. Include links to: 3-4 samples of lesson plans that involve students in higher-order thinking skills (highlighted); 3 – 4 problem-solving activities, and examples of completed student assignments developed from the sample lessons plans	No evidence of implementation	Provided one lesson plan that emphasize higher-order thinking skills; problem-solving activities, and examples of completed student assignments	Provided two to three lesson plans that emphasize higher-order thinking skills; problem-solving activities (highlighted), and examples of completed student assignments	Provided four or more lesson plans that emphasize higher-order thinking skills; problem-solving activities (highlighted), and examples of completed student assignments	
Criterion 2 - Environment (Environment)					
A2.2a (Technology Use in Instruction)					
A2.2a.11 Describe physical classroom/lab setting and the operational status of equipment in the classroom. Include: workspace facilities, description of typical workstation, number of workstations; may include photos	No evidence of implementation	Provided a description of physical classroom/lab setting without describing the operational status	Provided a description of physical classroom/lab setting and stated the operational status of equipment.	Provided a description and evidence of physical classroom/lab setting and stated the operational status of equipment in the classroom and provided an equipment replacement cycle	
A2.2a.12 Identify strengths, weaknesses, and plans for classroom/lab improvements	No evidence of implementation	Provided one example of strengths and weakness of the classroom/lab	Provided two examples of strengths or weaknesses of classroom lab	Provided three or more strengths or weaknesses of classroom lab	
A2.2a.13 Provide three examples of how technology is used in the classroom, and explain how are students using state-of-the-art technology to prepare for industry?	No evidence of implementation.	Provided one example of how students are using state-of-the-art technology to prepare for industry	Provided three examples of how students are using state-of-the-art technology to prepare for industry.	Provided more than three examples of how students are using state-of-the-art technology to prepare for industry	

A2.2b (Learning Environment)					
A2.2b.14a Describe how the program setting is conducive to learning (observed doing site visit).	No evidence of implementation.	Program setting is not organized, clean, or conducive to learning.	Provided two examples of how the program setting is engaging and conducive to learning.	Provided three or more examples of how the program setting is engaging and conducive to learning.	
A2.2b.14 Describe how the program complies with safety and sanitation requirements (meets OSHA requirements and Internet Safety guidelines, if applicable)	The program has no evidence of safety and sanitation guidelines.	Provided one example of how the program complies with safety requirements.	Provided two examples of how the program complies with safety guidelines	Provided three or more examples of how the program complies with safety requirements	
A2.2c (Culturally Sensitive Curriculum)					
A2.2c.15 Provide three lesson plans showing how different learning styles are addressed. (Highlight examples).	No evidence of implementation.	Provided less than three lesson plan that shows differentiated learning styles (highlighted)	Provided three lesson plans that show differentiated learning styles (highlighted)	Provided more lesson plans that show differentiated learning styles (highlighted)	
A2.2c.15a Curriculum and instruction are culturally and ethnically sensitive, free of bias, and reflect diverse learner interests and participation	No evidence of implementation	Provided less than three lesson plans that show curriculum and instruction are culturally and ethnically sensitive, free of bias, and reflect diverse learner interests and participation	Provided three lesson plan or activities that shows curriculum and instruction are culturally and ethnically sensitive, free of bias, and reflect diverse learner interests and participation	Provided more than three lesson plan that show curriculum and instruction are culturally and ethnically sensitive, free of bias, and reflect diverse learner interests and participation	
A2.2c.16** Describe adaptive technology in use, if applicable. Provide pictures, layout of physical space	No evidence of implementation.	Adaptive technologies are described but lack specifics or evidence of implementation.	Adaptive technologies described with minimal specifics and details of implementation.	Adaptive technologies are explained, clear, and completely documented with evidence of implementation.	
A2.2c.17** Provide three lesson plans showing accommodations for special education population or sample IEP for this program, if applicable	No evidence of implementation.	Provided less than three plans that show accommodations for special education population, or sample IEP for this program, if applicable	Provided three plans that show accommodations for special education population, or sample IEP for this program, if applicable	Provided more than three lesson plans that show accommodations for special education population or example IEP for this program, if applicable	

A2.2d (All Aspects of Industry)					
A2.2d.18a Describe the kinds of work-based/career learning experiences that are available in the program	No evidence of implementation.	One work-based or career learning experiences are available in the program	Two work-based, or career learning experiences are available in the program	Three to four high-quality work-based or career learning experiences are available in the program	
A2.2d.18 Provided examples of lesson teaching All Aspects of Industry (Highlight examples).	No evidence of implementation	Provided one lesson plan of teaching All Aspects of Industry (Highlight examples)	Provided two or three lesson plans of teaching All Aspects of Industry (Highlight examples)	Provided four or more lesson plans of teaching All Aspects of Industry (Highlight examples)	
Criterion 3 - Curriculum & Pathways (Curriculum and Pathways)					
A3.3a (Curriculum and Pathways)					
A3.3a.19 Explain how the curriculum is aligned to national, state, and local standards	No evidence of implementation	Provided narrative and a description one lesson plan that documents use of national, state, and local standards.	Provided narrative description of two lesson plans that document use of national, state, and local standards.	Provided a narrative description of three to four lesson plans that document use of national, state, and local standards.	
A3.3a.20* Provide plans that emphasize Science, Technology, Engineering, and Mathematics (STEM) concept (highlighted in lesson plans)	No evidence of implementation.	Provided one lesson plan that emphasizes Science, Technology, Engineering, and Mathematics (STEM) concepts. (highlighted in lesson plans)	Provided two lesson plans that emphasize Science, Technology, Engineering, and Mathematics (STEM) concepts. (highlighted in lesson plans.)	Provided three lesson plans that emphasize Science, Technology, Engineering, and Mathematics (STEM) concepts. (highlighted in lesson plans)	
A3.3a.21 Provide lesson plans that support core Virginia Standards of Learning (SOL). Highlight lesson plans.	No evidence of implementation	Provided one lesson plan that support core VA Standards of Learning (SOL)	Provided two lesson plans that support core VA Standards of Learning (SOL).	Provided three lesson plans that support core VA Standards of Learning (SOL).	
A3.3b (Workplace Readiness)					
A3.3b.22** Program ensures that students are prepared with academic knowledge and technical skills and are ready to transition into further	No evidence of implementation.	Provided one example of evidence of meeting the criteria	Provided two examples of evidence of meeting the criteria	Provided three or more examples of evidence meeting the criteria or program coursework qualifies for dual enrollment.	

education and/or the workplace, or the program coursework qualifies for dual enrollment.					
A3.3b.22** Program ensures that students are prepared with academic knowledge and technical skills and are ready to transition into further education and/or the workplace, or the program coursework qualifies for dual enrollment.	No evidence of implementation.	Provided one example of evidence of meeting the criteria	Provided two examples of evidence of meeting the criteria	Provided three or more examples of evidence meeting the criteria or program coursework qualifies for dual enrollment.	
A3.3b.23 Evidence of career pathway for this program that aligns CTE curriculum offerings at middle school, high school, and post-secondary programs (from local plan)	No evidence of implementation	Provided one career pathway option that does not show alignment with middle school, high school, and post-secondary.	Provided one career pathway option for this program that aligns CTE curriculum offerings at middle school, high school, and post-secondary programs.	Provided two or more career pathway options for this program that align CTE curriculum offerings at middle school, high school, and post-secondary programs.	

Criterion 4 - Business & Workplace (Business/Industry and Workplace Readiness)

A4.4a (Goals, Content, and Assessments Aligned With State or National Occupational or industry skill standard)

A4.4a.24* Explain program alignment with national industry or skill standards	No evidence of implementation.	Program alignment is explained vaguely with no document example.	Program alignment is explained and documented completely with one example.	Component is explained and documented completely with two or more examples.	
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A4.4b (Business/Industry Program Validation)

A4.4b.25 Identify how local Career and Technical Education Advisory Council, Craft Committee, or other industry representatives were involved with program/curriculum/equipment implementation	No evidence of implementation.	Provided one example of how local Career and Technical Education Advisory Council, or other industry involvement with program/curriculum/equipment implementation	Provided two examples of how local Career and Technical Education Advisory Council, or other industry involvement with program/curriculum/equipment implementation	Provided three or more examples of how local Career and Technical Education Advisory Council, or other industry involvement with program/curriculum/equipment implementation	
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A4.4c (Workplace Readiness and Other Appropriate Employability)

Appendix C3

<p>A4.4c.26 Explain how the program's goals, content and assessments include Virginia Workplace Readiness Skills and other appropriate employability skills and competencies</p>	<p>No evidence of implementation.</p>	<p>Provided one example of how the program's goals, content and assessments include Virginia Workplace Readiness Skills, other appropriate employability skills and competencies.</p>	<p>Provided two to three examples of how the program's goals, content and assessments include Virginia Workplace Readiness Skills, other appropriate employability skills and competencies.</p>	<p>Provided four or more examples of how the program's goals, content and assessments include Virginia Workplace Readiness Skills, other appropriate employability skills, and competencies.</p>	
<p>A4.4d (Program Certifications & Licensures)</p>					
<p>A4.4d.27 Industry credentials are available to students through this program</p>	<p>No evidence of implementation.</p>	<p>Provided a description of industry credentials available to students</p>	<p>Provided one sample of how students are preparing for industry credentials</p>	<p>Provided two or more samples of how students are preparing for industry credentials</p>	
<p>B6.6a.38 CTSO Recruitment Activities</p>	<p>No evidence of implementation.</p>	<p>Provided one example of CTSO student recruitment activities</p>	<p>Provided two examples of CTSO student recruitment activities</p>	<p>Provided three or more examples of CTSO student recruitment activities</p>	
<p>A4.4d.29 Teacher credentialing to meet local and state requirements for student-selected verified credit</p>	<p>No evidence of implementation.</p>	<p>Provided a plan for teacher(s) certification, or comparable credentials.</p>	<p>Provided documentation of teacher(s) having earned one industry credential.</p>	<p>Provided documentation of teacher(s) passing one or more industry credentials, and a plan for credentialing renewal.</p>	
<p>A4.4d.30 Provide evidence of workshops or courses completed in related field or in education within the last three years</p>	<p>No evidence of implementation.</p>	<p>Provided evidence of one workshop completed in related field or in education within the last three years.</p>	<p>Provided evidence of two workshops or one course completed in related field or in education within the last three years</p>	<p>Provided evidence of three or more workshops or two courses completed in related field or in education within the last three years</p>	
<p>Criterion 5 - Partnership (Partnership and Collaboration)</p>					
<p>A5.5a (Partnerships and Collaboration)</p>					
<p>A5.5a.31 Program collaborates with business, industry, labor and community agencies</p>	<p>No evidence of implementation.</p>	<p>Provide a narrative and one example of partnership involvement</p>	<p>Provide a narrative and four examples of partnership involvement</p>	<p>Provide a narrative and four or more examples of partnership involvement, which may include formal partnership agreements.</p>	
<p>A5.5b (Leader Support)</p>					

A5.5b.32 Support from leaders from within and outside of the organization	No evidence of implementation.	Provide one example of support from school or division leadership	Provided two examples of support from school, or division leadership, or external organizations.	Provided three or more examples of support from school, or division leadership, or external organizations.	
A5.5b.33 Awards/Recognitions received from school/division, or external organizations	No evidence of implementation.	Provided one example of awards and/or recognitions received from external organizations	Provided two examples of awards and/or recognitions received from external organizations	Provided three or more examples of awards and/or recognitions received from external organizations	
A5.5c (Collaboration with Post-Secondary Institutions)					
A5.5c.34 Collaboration and/or articulation with post-secondary institutions, and communicated pathways and opportunities to students.	No evidence of implementation	Provided one example of how career pathways and/or dual enrollment are communicated to students	Provided two examples of how post-secondary career pathways and/or dual enrollment are communicated to students	Provided three or more examples of how post-secondary career pathways and/or dual enrollment are communicated to students	
A5.5c.35 Collaboration with school counselors/career coaches, and other departments.	No evidence of implementation.	Provided one example of collaboration with school counselors, career coaches, and other departments.	Provided two examples of collaboration with school counselors, career coaches, and other departments.	Provided three or more examples of collaboration with school counselors, career coaches, and other departments.	
SECTION B (Educational Significance)					
Criterion 6 - Student Organizations (Career and Technical Student Organizations (CTSO))					
B6.6a (CTSOs Prepare Students as Citizens and Life Long Learners)					
B6.6a.36 CSTO Data Chart Analysis	No evidence of implementation.	Provided an incomplete CTSO Data Chart	Provided a complete CTSO Data Chart without analysis for the past three years	Provided a complete CTSO Data Chart and analysis for the past three years	
B6.6a.37 Career and Technical Student Organizations(CTSO) prepares learners to become productive citizens	No evidence of implementation.	Provided one lesson plan or activity preparing learners to become productive citizens	Provided two lesson plans or activities preparing learners to become productive citizens	Provided three or more lesson plans or activities preparing learners to become productive citizens	
B6.6a.38 CTSO Recruitment Activities	No evidence of implementation.	Provided one example of CTSO student recruitment activities	Provided two examples of CTSO student recruitment activities	Provided three or more examples of CTSO student recruitment activities	

B6.6a.39 Community Service Projects	No evidence of implementation.	Provided one example of community service projects	Provided two examples of community service projects	Provided three or more examples of community service projects	
B6.6a.40 Teacher's as role model through participation in regional, state, and national CTSO	No evidence of implementation.	Provided three or fewer examples of teacher involvement in CTSO at the local level	Provided three examples of teacher involvement in CTSO at the regional/ district level	Provided three or more examples of teacher involvement in CTSO at state and/or national levels	
B6.6b (Program Contributions to Workforce)					
B6.6b.41 Local and regional workforce development	No evidence of implementation.	Provided one example of how career outlook or job forecasting is used for program development	Provided two examples of how career outlook or job forecasting is used for program development	Provided three or more examples of how career outlook or job forecasting is used for program development	
B6.6b.42 Involvement of businesses, trade associations, and stakeholders	No evidence of implementation.	Provided one example of how business, trade associations, and the stakeholders are involved in program development	Provided two examples of how business, other trade associations, and the stakeholders are involved in program development	Provided three or more examples of how business, other trade associations, and the stakeholders are involved in program development	
B6.6b.43** Coop and/or Job Internship Wage Reports	No evidence of implementation.	Provided incomplete coop/job internship wage reports for students in the program	Provided an updated and complete coop/job internship wage reports for eligible students in the program.	Provided an updated and complete coop/job internship wage reports for all eligible students in the program, and submitted local and/or state reports	
B6.6b.44** Coop/Job Internship Training Agreements	No evidence of implementation.	Provided incomplete coop/job internship training agreements for students	Provided completed and signed coop/job internship training agreements for some eligible students in the program	Provided completed and signed coop/job internship training agreements for all eligible students in the program	
B6.6b.45** Employer Evaluations	No evidence of implementation.	Incomplete employer evaluations for students in the program are on file	Completed and signed employer evaluations for some eligible students in the program are on file	Completed and signed employer evaluations for all eligible students in the program are on file	
B6.6c (Non-Traditional Career)					
B6.6c.46 Program promotes equity and access for all learners, including non-traditional	No evidence of implementation.	Provided one example of promoting high expectations and equal access for some non-traditional and/or special populations for regardless of	Provided one example of promoting high expectations and equal access for all non-traditional and/or special populations regardless of	Provided two or more examples of promoting high expectations and equal access for non-traditional and/or special populations regardless	

occupations.		status	status	of status	
Criterion 7 - Planning & Leadership (Planning and Leadership)					
B7.7a (Contributions to Whole School)					
B7.7a.47 Contributions to whole school or systemic reform, or school improvement or reform.	No evidence of implementation	Provided one example of the program's contributions to whole school or systemic reform, or school improvement or reform	Provided two examples of the program's contributions to whole school or systemic reform, or school improvement or reform	Provided three or more examples of the program's contributions to whole school or systemic reform or school improvement or reform	
B7.7b (Respect and High Expectations)					
B7.7b.48 Respect and high expectations for all learners	No evidence of implementation.	Provided one example of mutual respect and high expectations for all students	Provided two examples of mutual respect and high expectations for all students	Provided three or more examples of mutual respect and high expectations for all students	
B7.7b.49 Leadership-Extra assistance/tutoring sessions, before, during or after school	No evidence of implementation.	Provided one example of extra assistance or tutoring session, before, during, or after school	Provided two examples of extra assistance or tutoring sessions, before, during, or after school	Provided three or more examples of extra assistance or tutoring sessions, before, during, or after school	
B7.7b.50 Homework Policy	No evidence of implementation	Provided homework policies that are not sufficient	Provided information on how homework policies are minimally communicated to students only	Provided information on how homework policies are communicated widely to students and parents, and easily accessible in multiple formats.	
B7.7c (Teaching, Learning, Practice Theory)					
B7.7c.51* Professional leadership roles in mentoring/supervision	No evidence of implementation'	Provided one example of informal professional/mentoring and supervision	Provided two more examples of official professional leadership roles	Provided three or more examples of an official professional leadership roles	
B7.7c.52 Teacher Leadership Activities	No evidence of implementation.	Provided one example of a teacher leadership activity.	Provided two examples of teacher leadership activities.	Provided three or more examples of teacher leadership activities.	
B7.7c.53** Teacher Credentialing	No evidence of implementation	Teacher has only a provisional license	Teacher meets minimal licensure and certification requirements	Teacher meets minimal licensure requirement, and has additional certifications and/or endorsements	

Criterion 8 - Instruction (Instruction & Professional Development)					
B8.8a (Integration & Interdisciplinary Collaboration)					
B8.8a.54 Interdisciplinary curriculum and collaboration	No evidence of collaboration.	Provided one example of interdisciplinary lessons or projects	Provided two examples of interdisciplinary lessons or projects	Provided three or more examples of collaboration and interdisciplinary lessons or projects	
B8.8a.54 Interdisciplinary curriculum and collaboration	No evidence of collaboration.	Provided one example of interdisciplinary lessons or projects	Provided two examples of interdisciplinary lessons or projects	Provided three or more examples of collaboration and interdisciplinary lessons or projects	
B8.8a.55 Program grants, awards, and recognitions	No evidence of implementation	Provided one example of program, grants, awards, and recognitions	Provided two examples of program, grants, awards, and recognitions	Provided three or more examples of program, grants, awards, and recognitions	
B8.8a.56 Instructional technology to add rigor and relevance	No evidence of implementation	Provided one example of using instructional technology to add rigor and relevance to classroom instruction	Provided two examples of using instructional technology to add rigor and relevance to classroom instruction	Provided three or more examples of using instructional technology to add rigor and relevance to classroom instruction	
B8.8b (Instructional Methods)					
B8.8b.57 Critical Thinking and Problem-solving Lessons/Units	No evidence of implementation.	Provided less than three lesson plans that involve students demonstrating critical thinking and problem-solving skills (highlighted in lesson plan)	Provided three lesson plans that involve students demonstrating critical thinking and problem-solving skills (highlighted in lesson plan)	Provided three or more lesson plans that involve students demonstrating critical thinking and problem-solving skills (highlighted in lesson plan)	
B8.8b.58 Students' assignments demonstrate critical thinking and problem-solving skills	No evidence of implementation	Provided less than three completed student assignments demonstrating critical thinking and problem-solving skills	Provided three completed student assignments demonstrating critical thinking and problem-solving skills	Provided more than three completed student assignments demonstrating critical thinking and problem-solving skills	
B8.8b.59 Project or Problem-Based Learning Activities	No evidence of implementation.	Provided one example of project or problem-based learning activities	Provided two examples of project or problem-based learning activities	Provided three or more examples of project or problem-based learning activities	
B8.8b.60 Instructional practices resulting from professional	Little or no evidence of implementation	Provided less than three instructional practices resulting from professional development	Provided three examples of instructional practices resulting from professional development	Provided more than three examples of instructional practices resulting from	

development activities		activities	activities	professional development activities	
B8.8c (Professional Development)					
B8.8c.61 Professional Development Activities	No evidence of implementation.	Provided one example of participation in professional activities within past three years	Provided two examples of participation in professional development activities within past three years	Provided three or more examples of professional development activities within past three years	
B8.8c.62 Leading staff development at local, state, or national levels	No evidence of implementation	Provided evidence of leading one staff development activity at the local, state, or national level	Provided evidence of leading two staff development activities at the local, state, or national level	Provided evidence of leading three or more staff development activities at the local, state, or national level	
B8.8c.63* Service on district level, state, or national committees related to program area	No evidence of implementation	Provided evidence of less than one year of service on committees related to the program area at the local, or state levels.	Provided evidence of less than three years of service on committees related to the program area at the local, or state letters.	Provided evidence of three years of service on one or more on district level, and/or three or more years of service at the state or national committee	
B8.8c.64* Published articles	No evidence of implementation	Provided evidence supporting the submission of one article, but not published	Provided documentation of a published article at the district level, or local publication	Provided documentation of a published an article in a peer review journal	
B8.8c.65 Professional Teaching Licensure	No evidence of implementation	Provided documentation of teachers with only provisional or insufficient licensure or endorsement.	Provided documentation of all teachers endorsed in one subject within the program area	Provided documentation of all teachers endorsed in one or more subjects within the program area, and one or more teachers with multiple endorsements	
B8.8d (Emerging Green Innovations)					
B8.8d.66* Green community service projects	No evidence of implementation.	Provided documentation of one green-oriented community service project	Provided documentation of two green-oriented community service projects	Provided documentation of three or more green-oriented community service projects	
B8.8d.67* Green competencies taught in program area	No evidence of implementation	Provided incomplete evidence of green competencies development in the curriculum area	Provided a minimal list of green competencies in the curriculum area	Provided a comprehensive list and narrative description of green competencies in the curriculum area	
B8.8d.68* Lesson/Unit plan promotes ecologically sustainable of	No evidence of implementation	Provided a lesson/unit plan that promotes sustainability of green skills	Provided one detailed lesson/unit plan that promotes sustainability of green skills	Provided two or more detailed lessons/unit plans that promote sustainability of green skills	

green skills					
B8.8d.69* Classroom practices or student activities that support sustainability promotion, and research practices of green skills	No evidence of implementation.	Provided one classroom practice that support sustainability promotion, and research practices of green skills	Provided two classroom practices that support sustainability promotion, and research practices of green skills	Provided three or more classroom practices that support sustainability promotion, and research practices of green skills	
SECTION C (EVIDENCE OF EFFECTIVENESS AND SUCCESS)					
Criterion 9 - Assessment and Data (Assessment and Data Analysis)					
C9.9a (Learners Demonstrate Competency Attainment)					
C9.9a.70 Learners demonstrate competency attainment as reflected in student credentialing data chart	No evidence of implementation.	Student credentialing chart provided without analysis	Student credentialing chart provided with analysis	Student credentialing data chart provided with narrative and an analysis of how the program's outcomes meet or exceeds local and state performance measures.	
C9.9a.71 Provide update and complete student competency records (observed site visit or posted records)	No evidence of implementation	Provided student competency records, but not updated or complete	Provided evidence of completed student competency records in CanDo, and available during a site visit.	Demonstrated that all student competency records (SCR) are updated in CanDo, and available during a site visit.	
C9.9b (Learner Demonstrated Competency Attainment)					
C9.9c.72 Provide examples of students successfully transition into further education, workforce, and/or military service	No evidence of implementation.	Provided less than three examples of student's successful transition	Provided three examples of student success stories	Provided three or more examples of student success stories	
C9.9c (Transition to Post-Secondary, Workforce, or Other)					
C9.9c.72 Provide examples of students successfully transition into further education, workforce, and/or military service	No evidence of implementation.	Provided less than three examples of student's successful transition	Provided three examples of student success stories	Provided three or more examples of student success stories	

C9.9d (Achievement Gap)					
C9.9d.73 Provide an analysis of the program enrollment within the last three years	No evidence of implementation	Provided incomplete student enrollment data for the past three years	Provided a complete student enrollment data chart and analysis for the past three years	Provided a complete student enrollment data chart, enrollment analysis, and a reflective narrative	
C9.9d.74 Provide an analysis of disaggregated student enrollment data for the past three years	No evidence of implementation	Provided an incomplete analysis of the disaggregated student enrollment data with gaps in enrollment data	Provided a complete analysis of the disaggregated student enrollment data for the past three years	Provided a complete narrative analysis of the disaggregated student enrollment data for the past three years	
C9.9d.75 Provide a competency attainment data chart for the past three years	No evidence of implementation	Provided an incomplete student competency data chart for the past three years	Provided a complete student competency attainment data chart for the past three years	Provided a complete student competency attainment data chart and a narrative analysis for the past three years	
C9.9d.76 Provide an narrative analysis of disaggregated competency attainment data chart for the past three years	No evidence of implementation.	Provided an incomplete analysis of the disaggregated student competency attainment data	Provided an analysis of the disaggregated student competency attainment data for the past three years	Provided a comprehensive analysis of the disaggregated student competency data for the past three years	
C9.9d.77 Provide an analysis of disaggregated CTE Certification data for the past three years	No evidence of implementation	Provided an incomplete analysis of disaggregated CTE certification data	Provided an analysis of disaggregated CTE certification data for the past two years	Provided a comprehensive analysis of disaggregated CTE certification data for the past three years	
Criterion 10 - Performance Measures (Evaluation)					
C10.10a (Local, State, and National Performance Measures)					
C10.10a.78* Program exceeds identified performance goals on local, state, and federal performance measures on program completers, certification, and competency attainment.	No evidence of implementation	Program data demonstrate that the program does not exceed local and state benchmarks on industry credentialing pass rates or student competency attainment	Program data demonstrate that the program exceeds local and state benchmarks on industry credentialing pass rates or student competency attainment, and program completion.	Program data demonstrate that the program exceeds local and state benchmarks on industry credentialing pass rates and student competency attainment, and program completion.	

C10.10a.79* Comparison ranking of certifications and credentials for current year to other programs in the school, the school division, and state	No evidence of implementation	Provided an incomplete comparison ranking of certifications and credentials for current year to other programs in the school, the school division, and state	Provided a ranking of certifications and credentials for current year to other programs in the school, the school division, and state	Provided a ranking and comprehensive comparison ranking of certifications and credentials for current year to other programs in the school, the school division, and state	
Criterion 11 - Evaluation (Evaluation)					
C11.11a (Continuous Program Improvement)					
C11.11a.80* Evidence of self-analysis of program	No evidence of implementation.	Provided documentation of participation in Exemplary Standards Program Evaluation, but lacks evidence in multiple Criteria 1 - 12.	Provided documentation of participation in Exemplary Standards Program Evaluation with self-analysis of program	Provided documentation of participation in Exemplary Standards Program Evaluation with self-analysis of program	
C11.11b (Feedback from Parent, Business, Community Used For Program Improvement)					
C11.11b.81 External parent, student, stakeholders' feedback for program improvement	No evidence of implementation	Provided insufficient description of how program feedback is obtained and used for program improvement	Provided two examples of how the program regularly obtains feedback and uses information for program improvement	Provided a descriptive narrative with three or more supporting examples of feedback from parents, business, and community used for program improvement	
C11.11c (Feedback to Spur Program Improvement)					
C11.11c.82 Students and graduates (program completers) are solicited for feedback to improve the program	No evidence of implementation	Provided a narrative with one supporting examples of feedback from students and program completers	Provided two examples of how the program regularly obtains feedback from students and uses information for program improvement.	Provided a descriptive narrative with three or more supporting examples of feedback from students used for program improvement.	
C11.11d (Program Challenges)					
C11.11d.83 Teachers are involved in identifying needs and assessing continuous improvement strategies	No evidence of implementation.	Provided a narrative with less than four challenges in identifying needs and continuous program improvement	Provided a narrative with four supporting challenges in identifying needs and continuous program improvement	Provided a narrative analysis with more than four supporting program challenges in identifying needs and continuous program improvement	

C11.11e (Formative and Summative Data)					
C11.11e.84 Program data charts analyzed to identify program challenges	No evidence of implementation	Provided a data chart without analysis or identified program challenges.	Provided a narrative of the program data charts and analysis identifying the program's challenges	Provided a comprehensive narrative analysis identifying program challenges, and provided a trend analysis for program improvement	
C11.11e.85 Identify three strategies that will be used to address challenges in program trend data analysis	No evidence of implementation	Provided a narrative with supporting samples of one strategy to address program challenges	Provided three strategies to address program challenges identified in the program evaluation	Provided three or more strategies to address all the program challenges identified in the trend data analysis	
Criterion 12 Program Implementation (Program Implementation)					
C12.12a (Documentation of Program Resources)					
C12.12a.86 Program has sufficient documentation and specifies the conditions and resources needed for implementation	No evidence of implementation	Program lacks budget documentation and instructional guides	Provide a narrative with two supporting examples demonstrating the program has limited or adequate materials including handbook, budget, and instructional guides that are accessible	Provide a narrative with three or more supporting examples demonstrating that the program has sufficient materials including handbook, budget, and instructional guides that are accessible	
C12.12b (Duplication and Replication of Program's Best Practices)					
C12.12b.87 Best practices are shared and made available in other settings	No evidence of implementation	Provided a narrative and one example where a presentation about program made to other groups	Provided a narrative and two examples of presentations about program made to other groups	Provided a narrative with three or more examples of sharing best practices in presentations about program made to other groups	
C12.12b.88 Best instructional practices of the program	No evidence of implementation	Provided a narrative and sample of one best instructional practice in CTE in the curricula.	Provided a narrative and documented two best instructional practices used in CTE in the curricula.	Provided a narrative and examples of three or more best instructional practices in CTE in the curricula.	
C12.12b.88 Best instructional practices of the program	No evidence of implementation	Provided a narrative and sample of one best instructional practice in CTE in the curricula.	Provided a narrative and documented two best instructional practices used in CTE in the curricula.	Provided a narrative and examples of three or more best instructional practices in CTE in the curricula.	

CTE Enrollment

At the high school level, the APS CTAE program offers courses in six program areas:

- **Trade and Industrial Programs** (For example: Air Force JROTC, Automotive Technology, Cosmetology, Culinary Arts and Sciences, Electricity, Physical Therapy/Sports Medicine Technology, Television Production)
- **Technology Education** (For example: Engineering, Project Lead the Way, Computer Assisted Drawing/Architectural Drawing, IB Design Technology)
- **Military Science** (JROTC courses)
- **Health and Medical Sciences** (For example: Physical Therapy/Sports Medicine, EMT, Pharmacy Tech, Animal Science)
- **Family and Consumer Sciences** (For example: Child Development and Parenting, Early Childhood Education, Interior and Fashion Design, Food and Fitness)
- **Computer Science** (For example: Computer Science, AP Computer Science, Computer Information Systems)
- **Business and Information Technology and Marketing** (For example: Introduction to Business and Marketing, Cybersecurity, Advanced Topics in Businesses and Marketing, Entrepreneurship)

At the middle school level, CTE courses are available in the following areas:

- **Technology Education** (For example: Exploring Technology, Technological Systems, Inventions and Innovations)
- **Family and Consumer Sciences** (For example: Exploring Family and Consumer Science, Teen Living, Life Management Skills, Taking Charge)
- **Business and Information Technology** (For example: Digital Input Technologies, Exploring Computer Keyboarding Applications, Multimedia Technology, Investigating Computer Science)

Figure 1: Number of Enrollments in CTE Classes

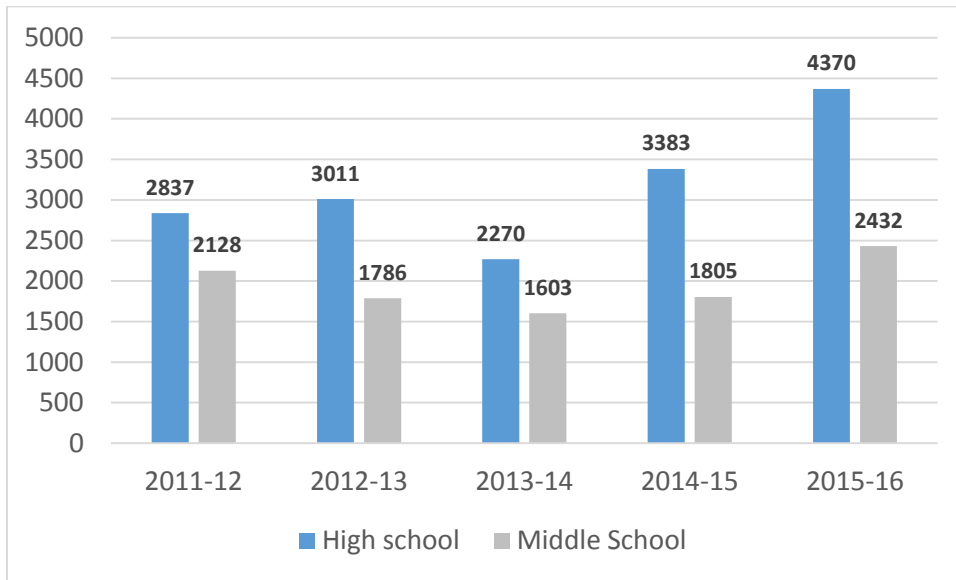


Figure 2: Percent of Students Enrolled in a Minimum of One CTE Course

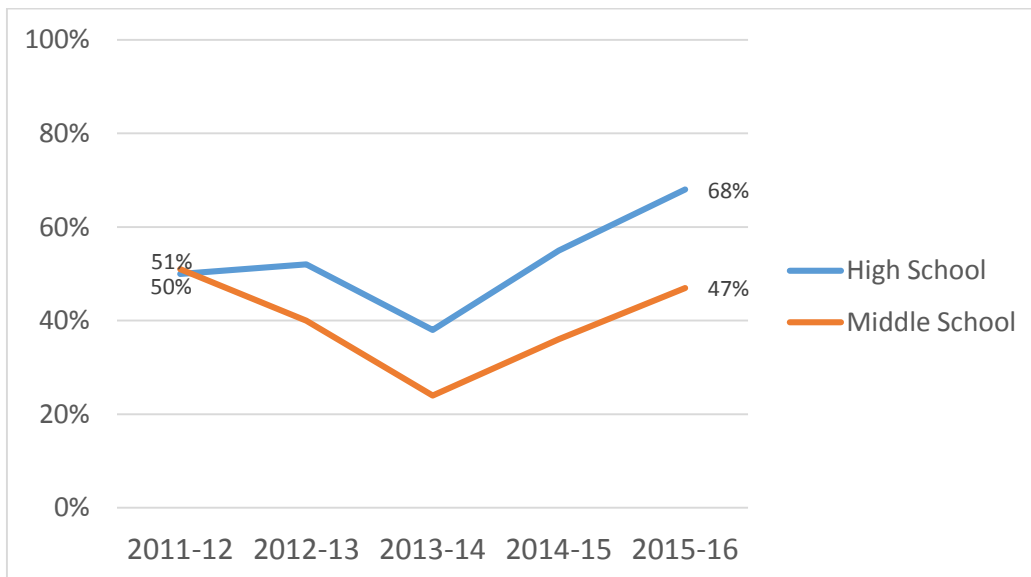


Figure 3: CTE High School Enrollment by Program Category 2011-12 to 2015-16

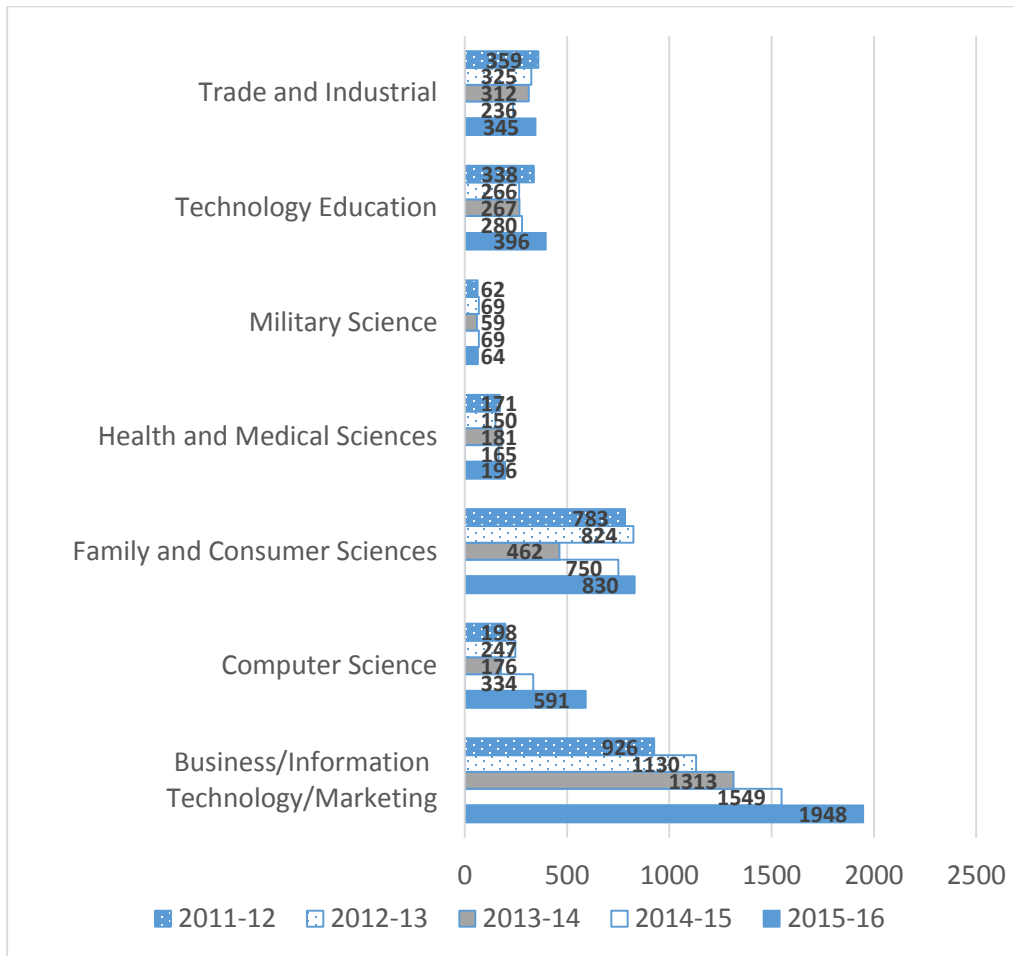
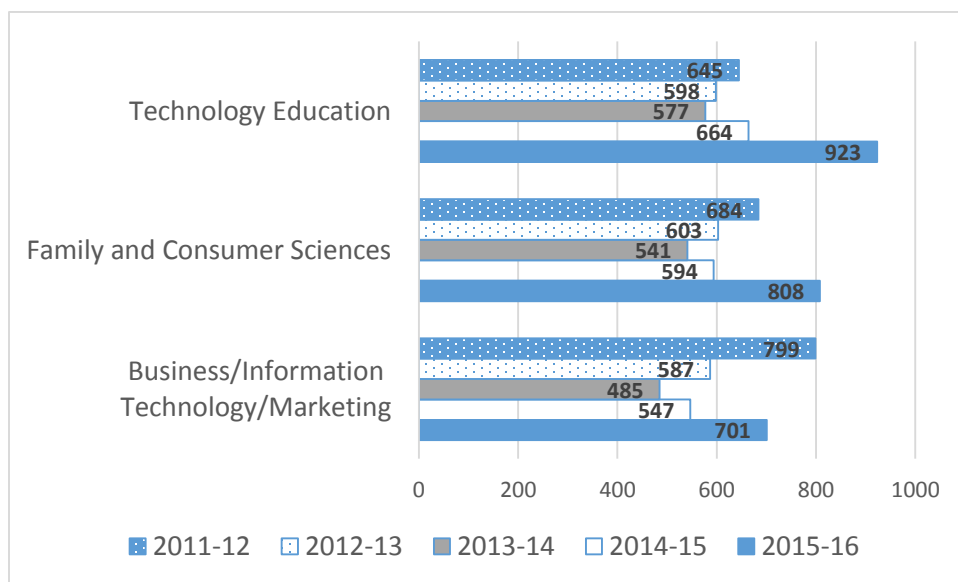


Figure 4: CTE Middle School Enrollment by Program Category 2011-12 to 2015-16



Appendix C4

Figure 5: Percent of High School Students Enrolled in a Minimum of One CTE Course by Program Category

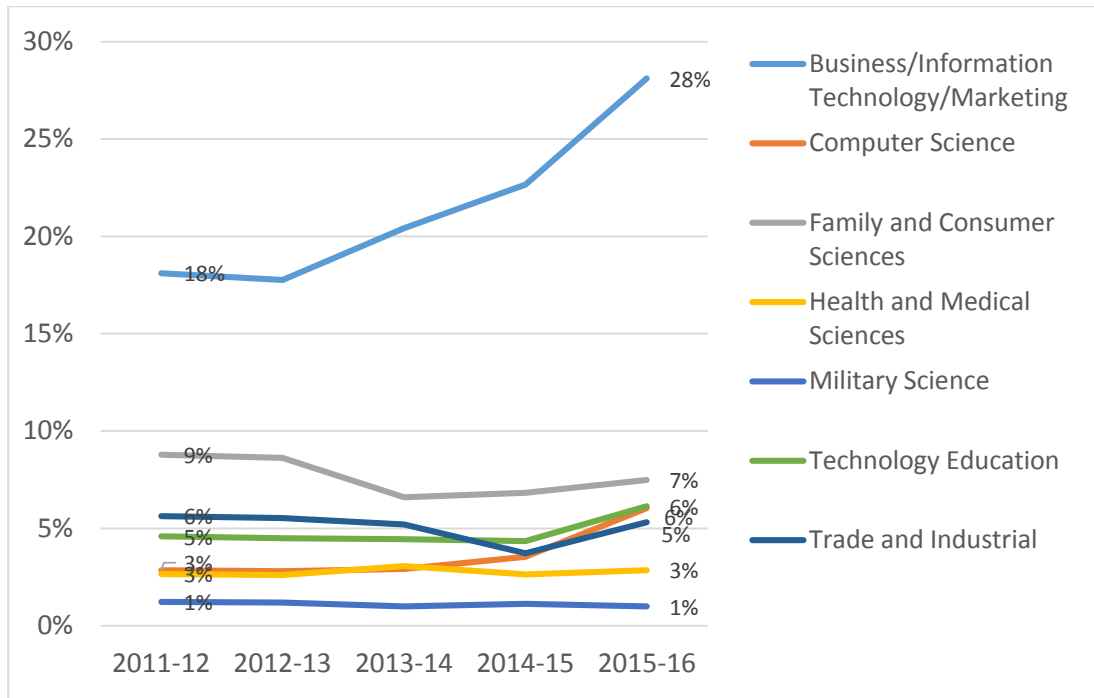


Figure 6: Percent of Middle School Students Enrolled in a Minimum of One CTE Course by Program Category

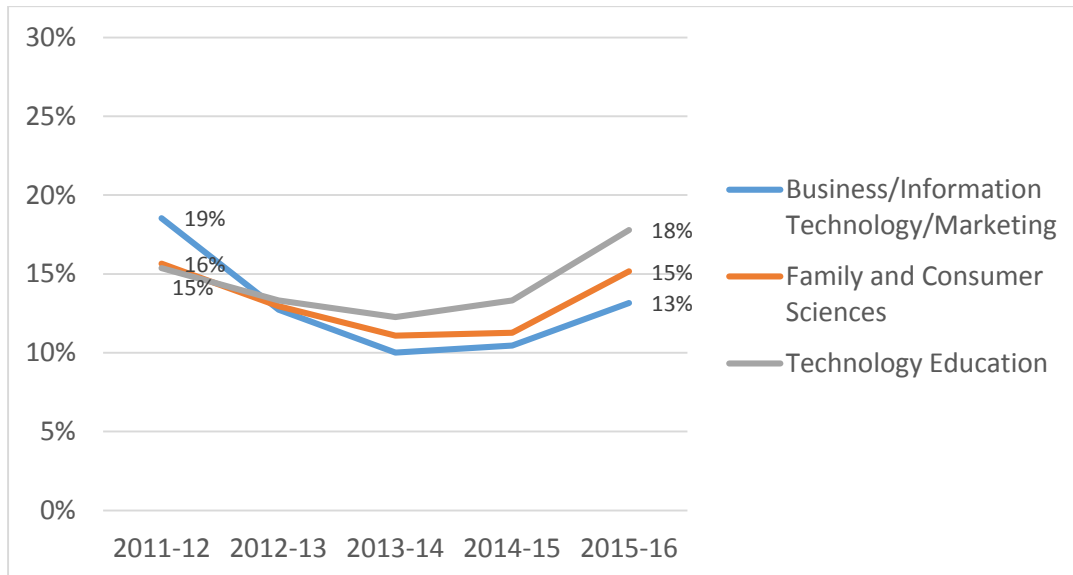


Figure 7: Overall High School Enrollment by Gender

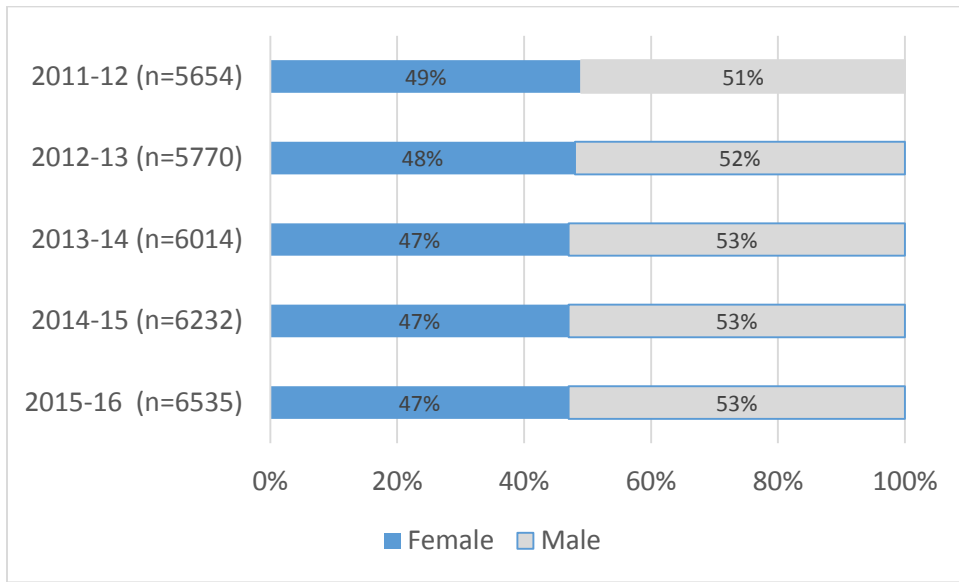


Figure 8: 2015-16 CTE High School Enrollment by Gender

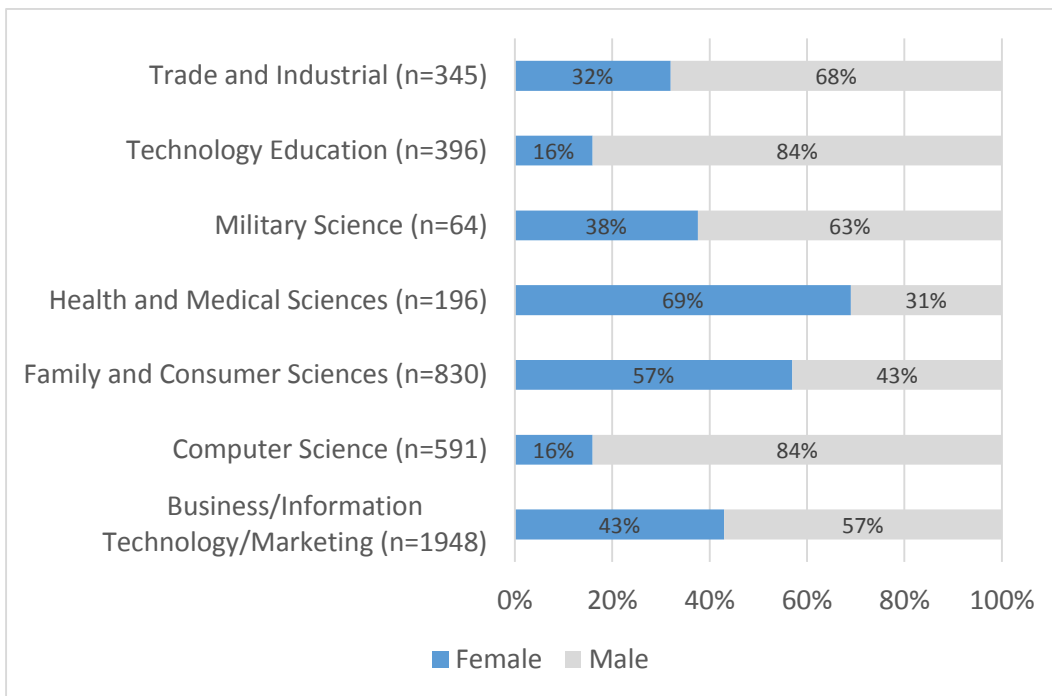


Figure 9: 2014-15 CTE High School Enrollment by Gender

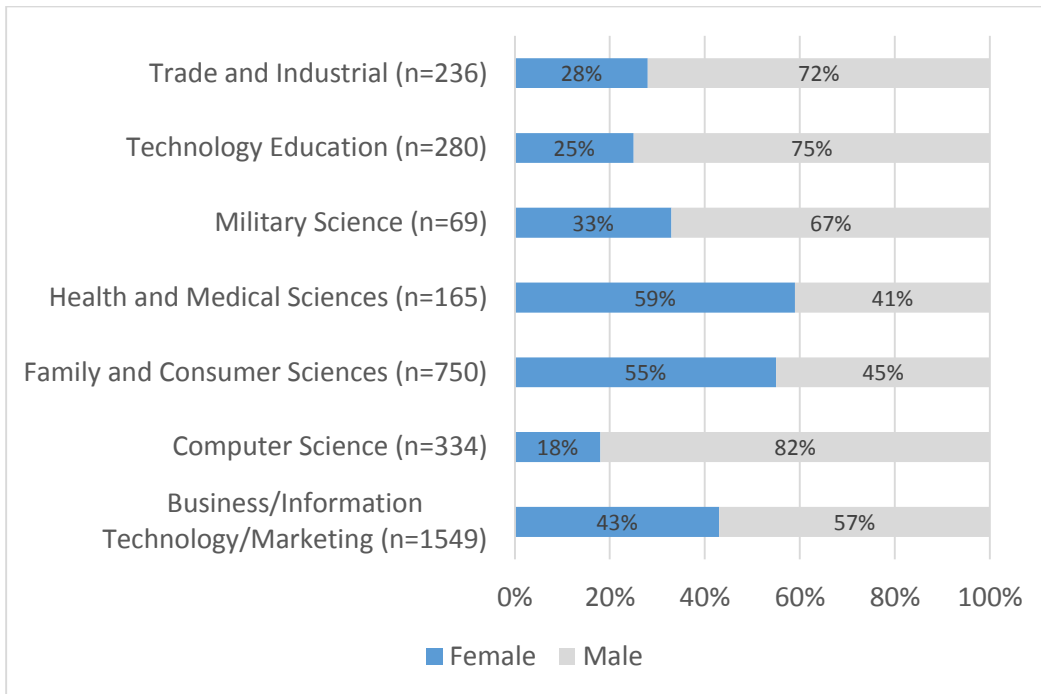


Figure 10: 2013-14 CTE High School Enrollment by Gender

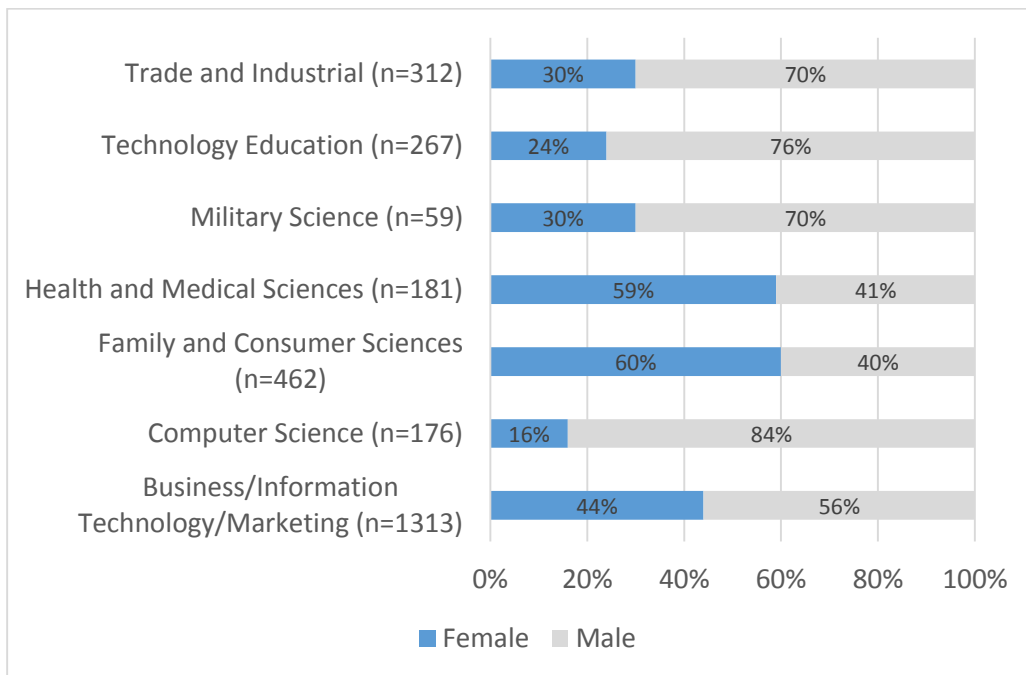


Figure 11: 2012-13 CTE High School Enrollment by Gender

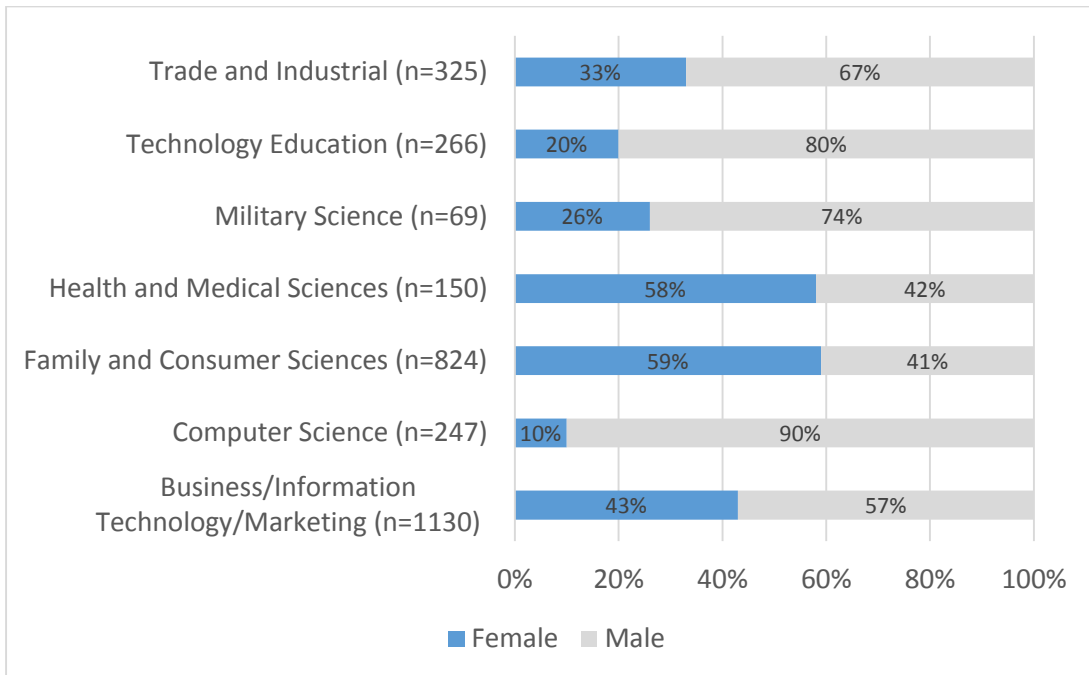


Figure 12: 2011-12 CTE High School Enrollment by Gender

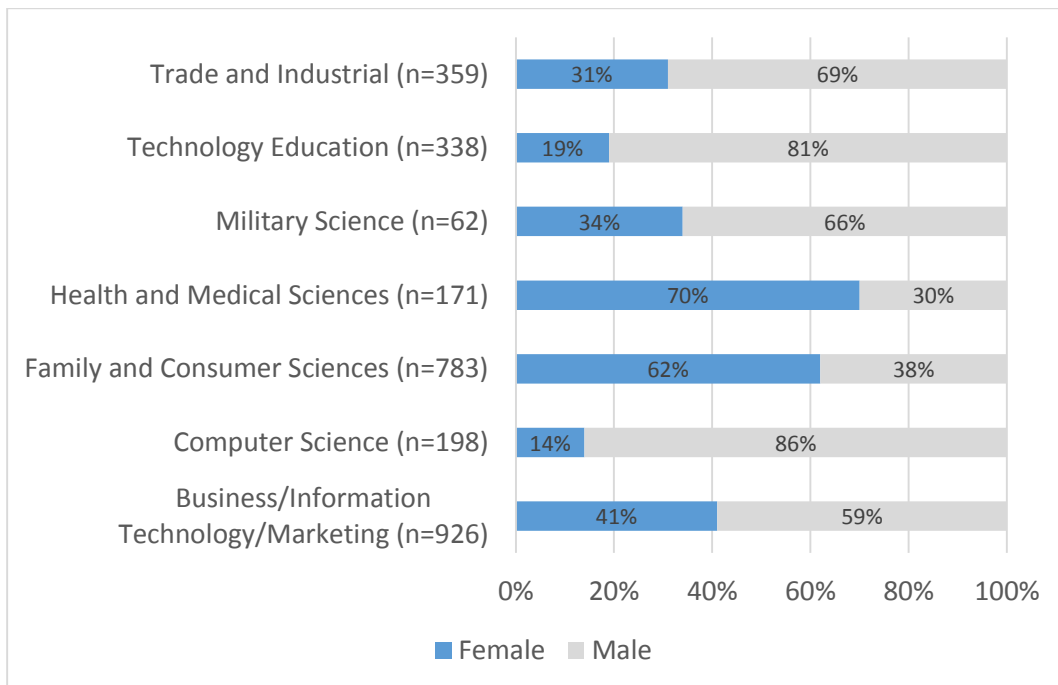


Figure 13: Overall High School Enrollment by LEP Status

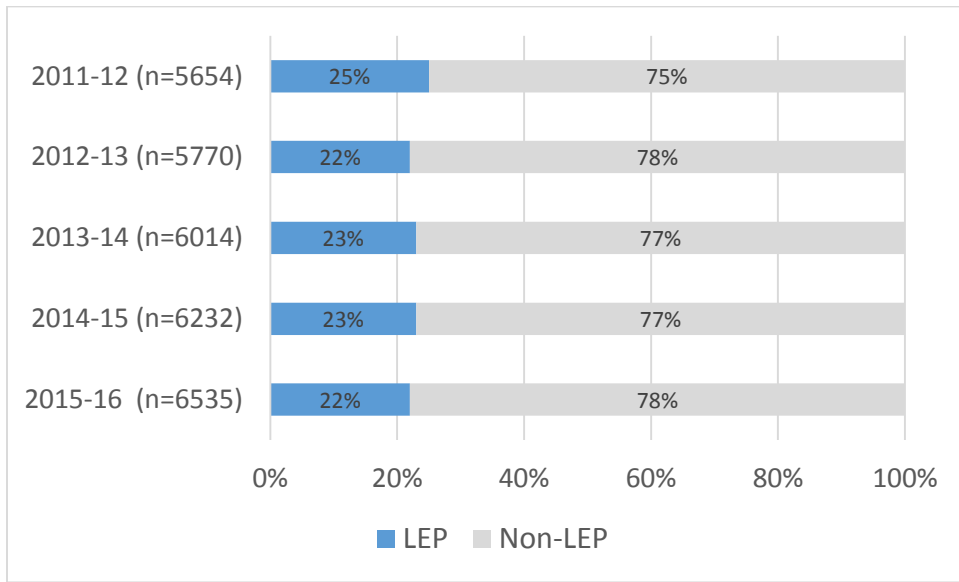


Figure 14: 2015-16 CTE High School Enrollment by LEP Status

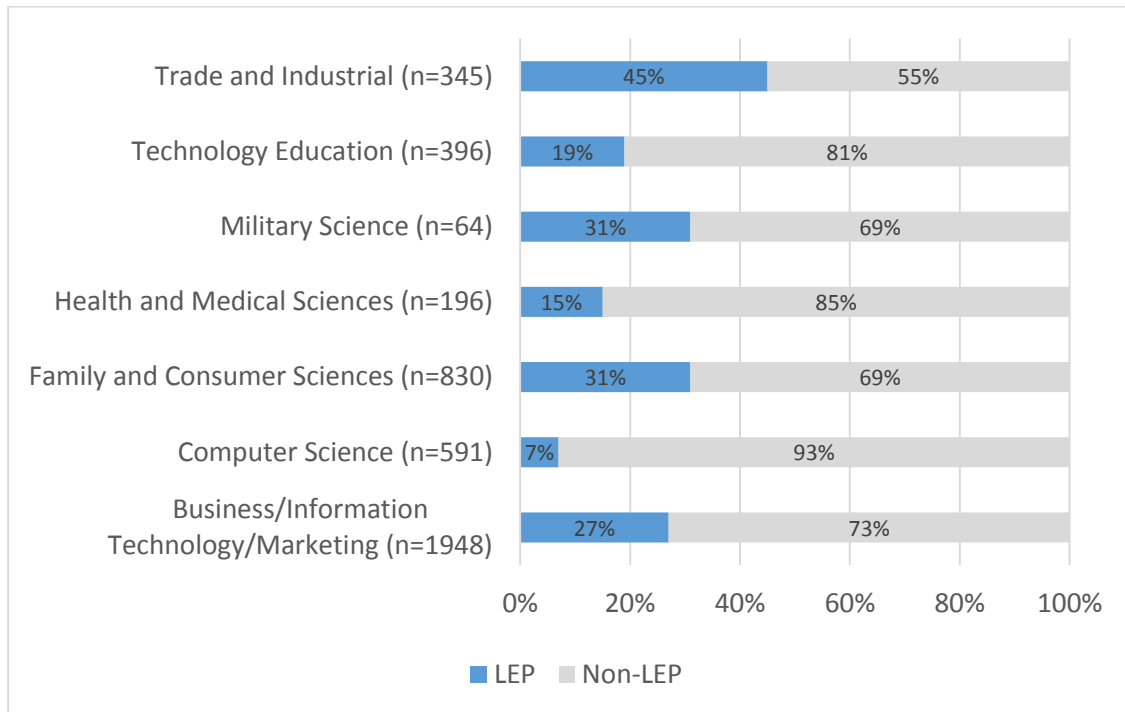


Figure 15: 2014-15 CTE High School Enrollment by LEP Status

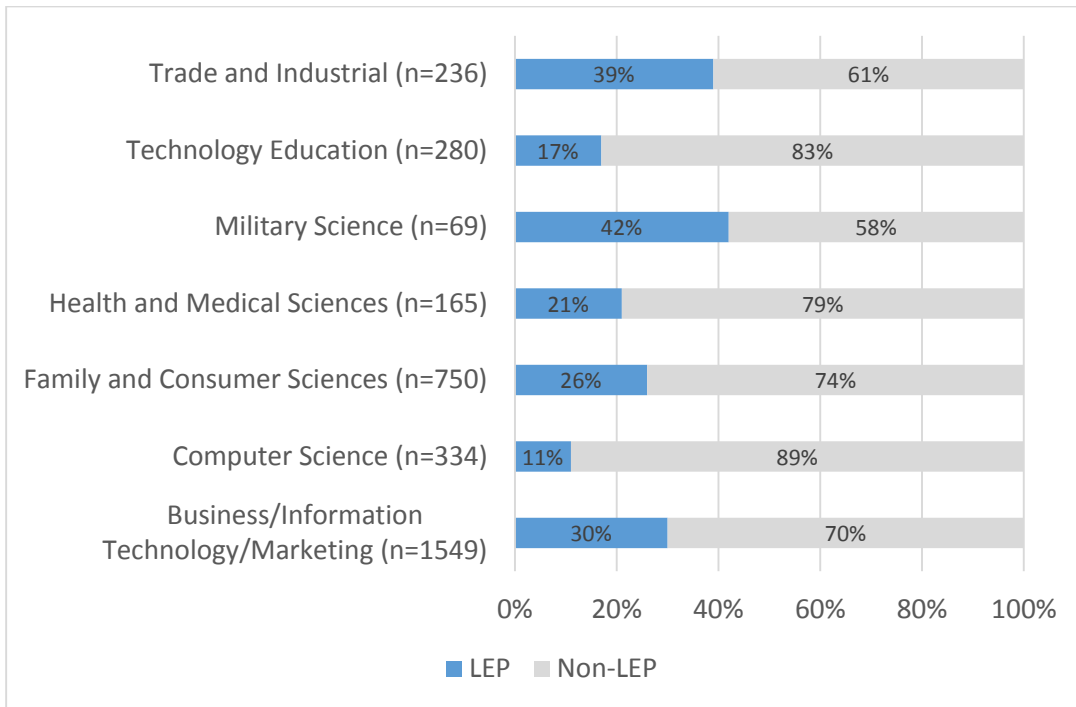


Figure 16: 2013-14 CTE High School Enrollment by LEP Status

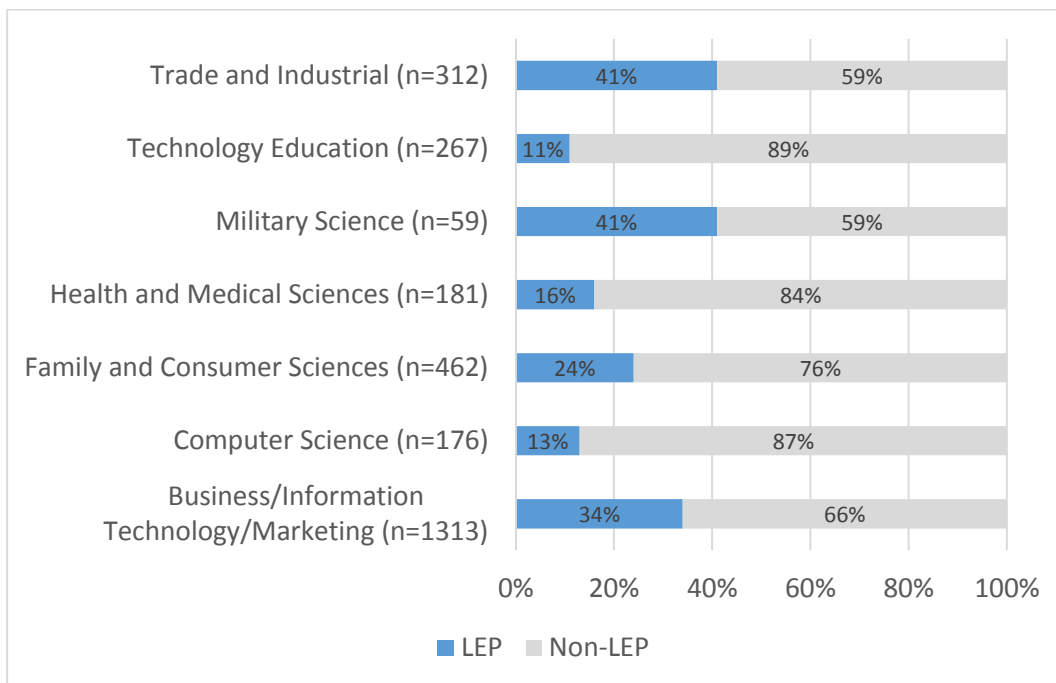


Figure 17: 2012-13 CTE High School Enrollment by LEP Status

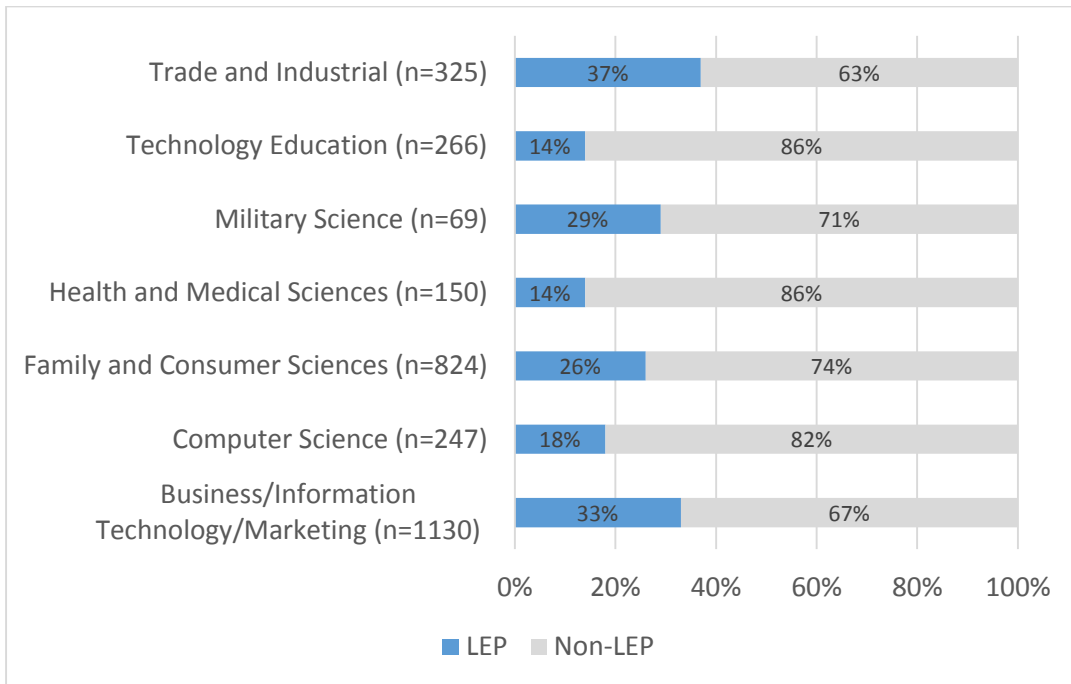


Figure 18: 2011-12 CTE High School Enrollment by LEP Status

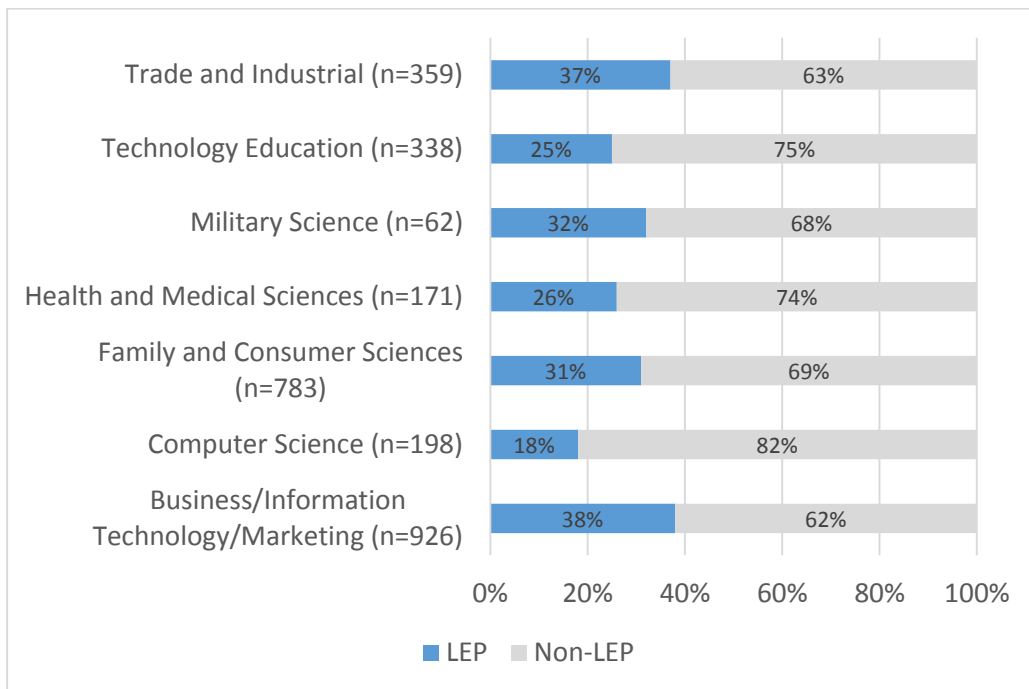


Figure 19: Overall High School Enrollment by Disadvantaged Status

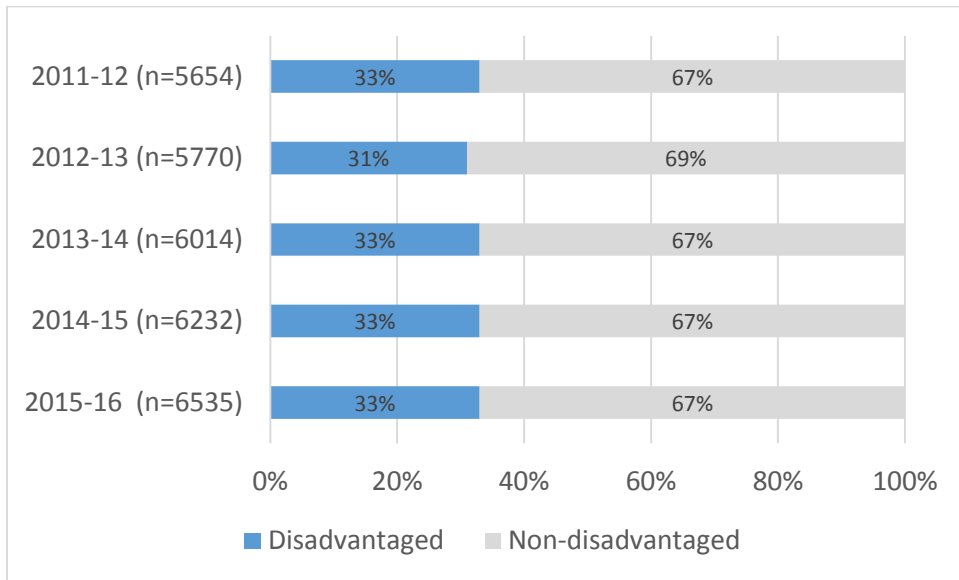


Figure 20: 2015-16 CTE High School Enrollment by Disadvantaged Status

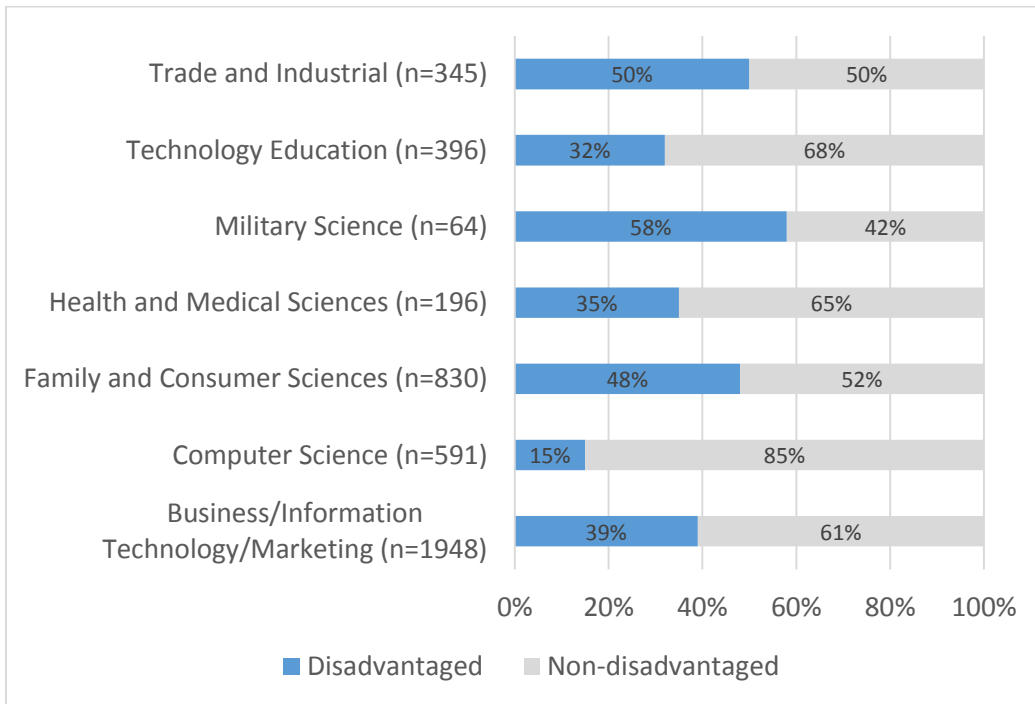


Figure 21: 2014-15 CTE High School Enrollment by Disadvantaged Status

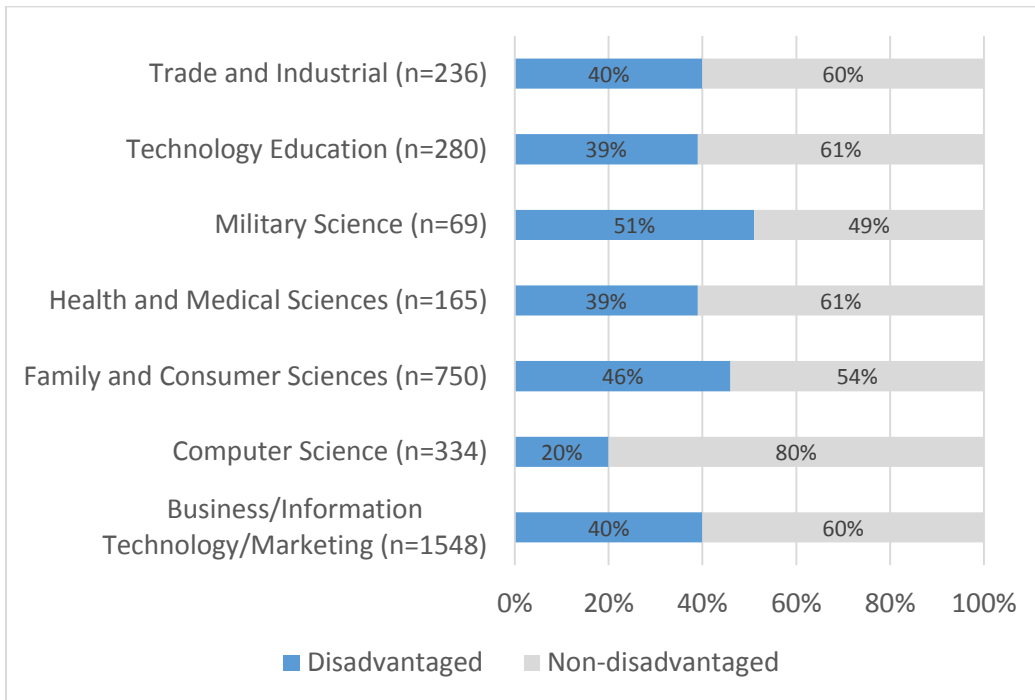


Figure 22: 2013-14 CTE High School Enrollment by Disadvantaged Status

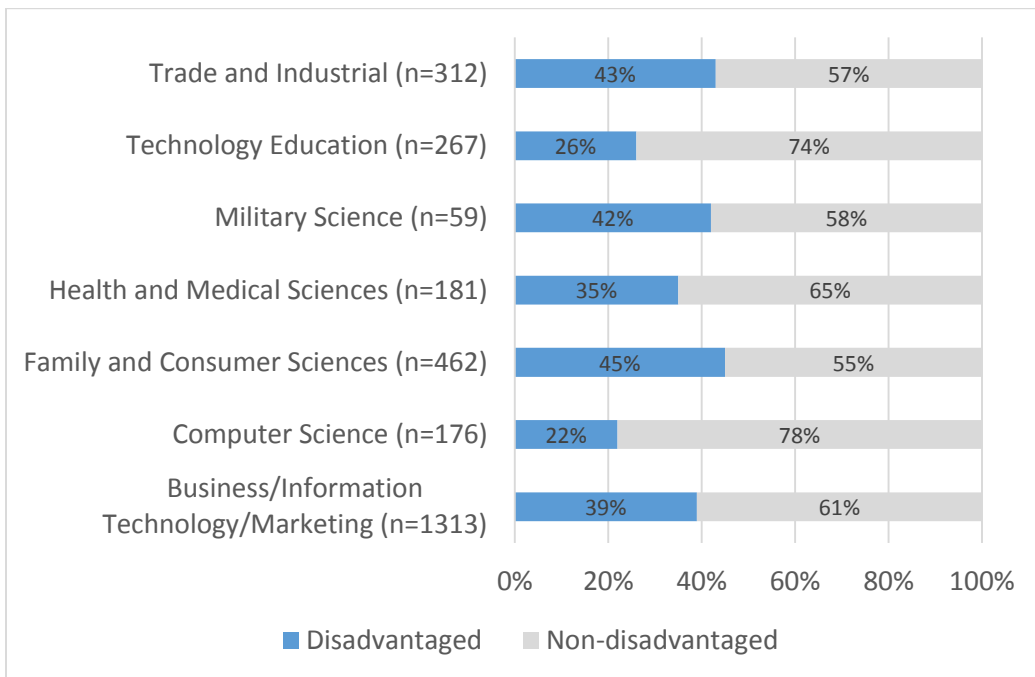


Figure 23: 2012-13 CTE High School Enrollment by Disadvantaged Status

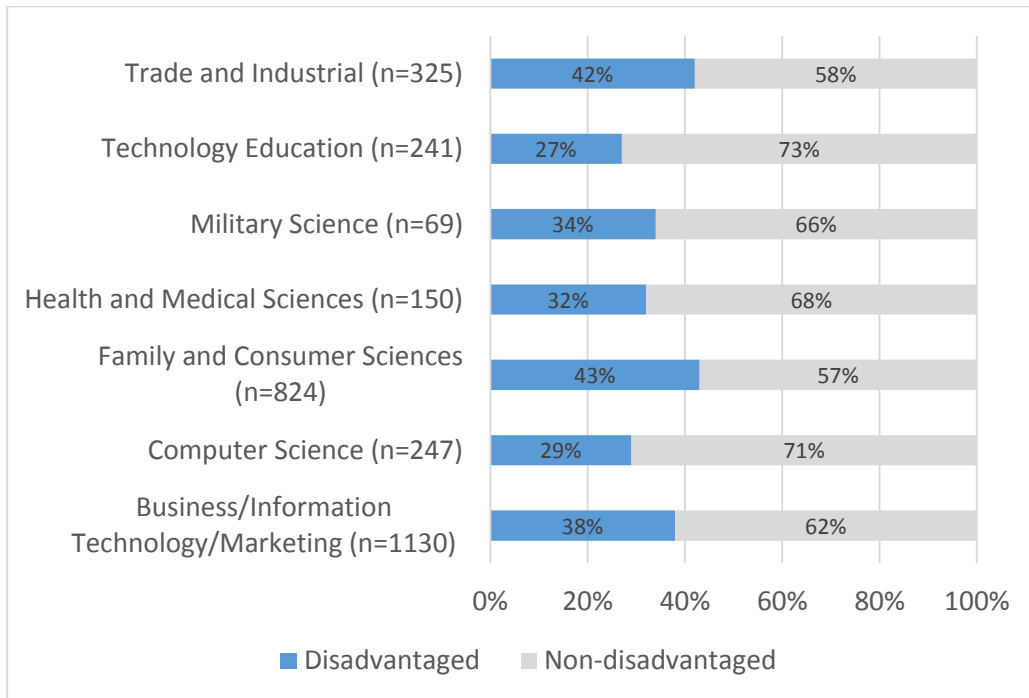


Figure 24: 2011-12 CTE High School Enrollment by Disadvantaged Status

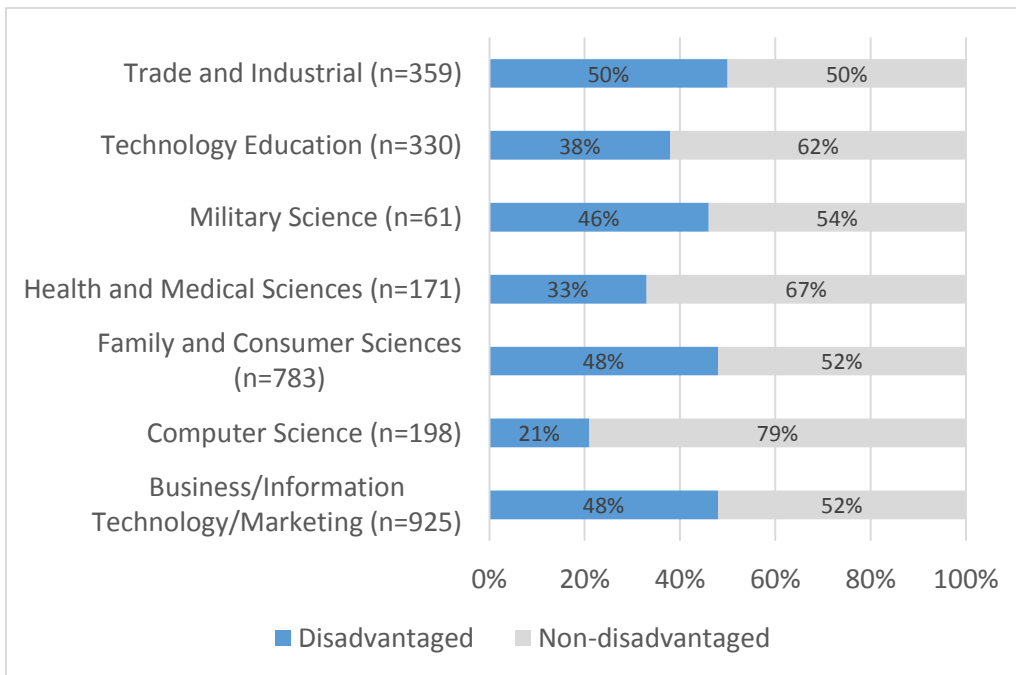


Figure 25: Overall High School Enrollment by SWD Status

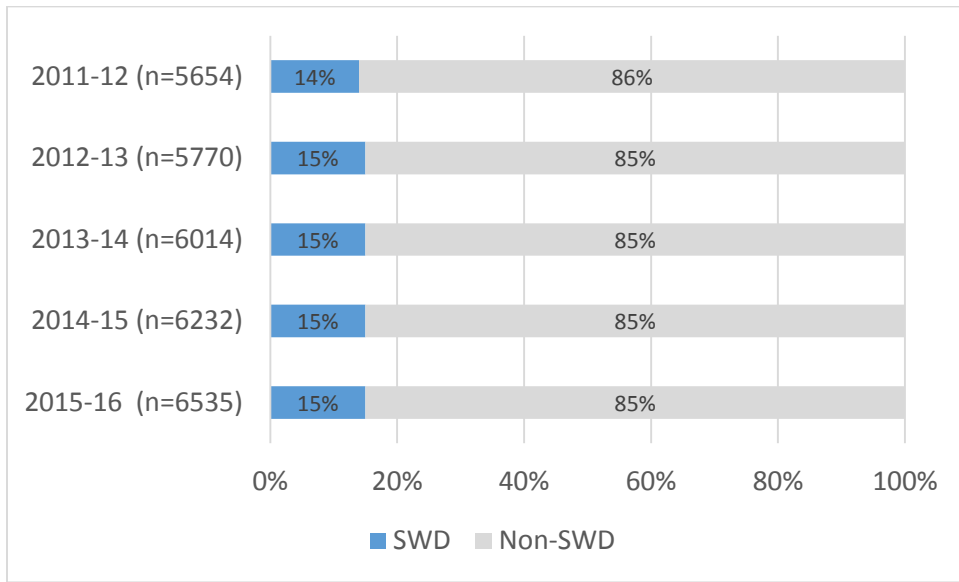


Figure 26: 2015-16 CTE High School Enrollment by SWD Status

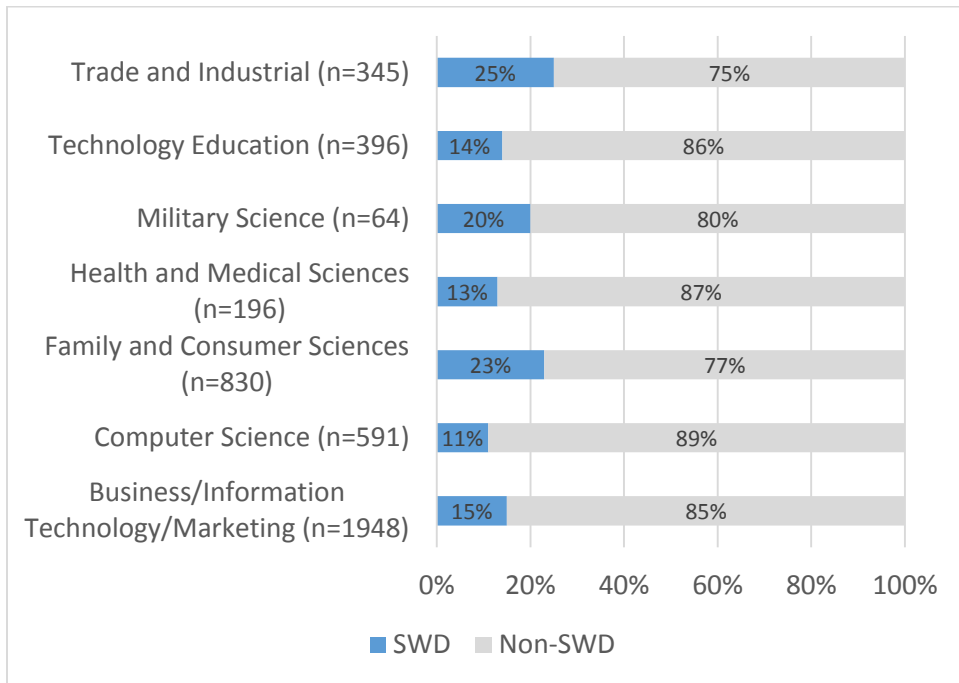


Figure 27: 2014-15 CTE High School Enrollment by SWD Status

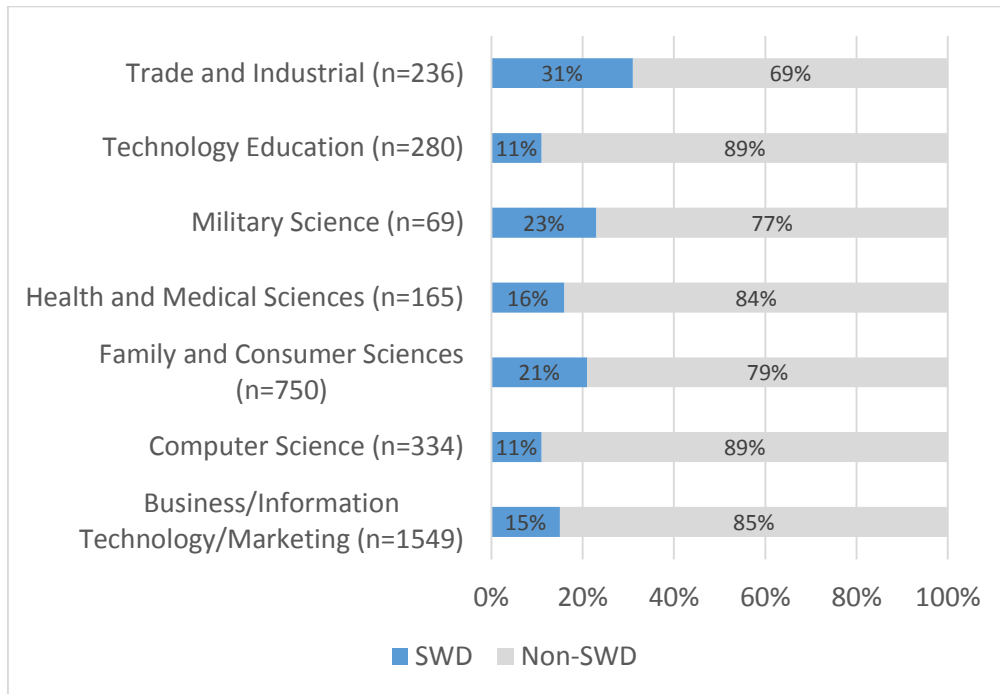


Figure 28: 2013-14 CTE High School Enrollment by SWD Status

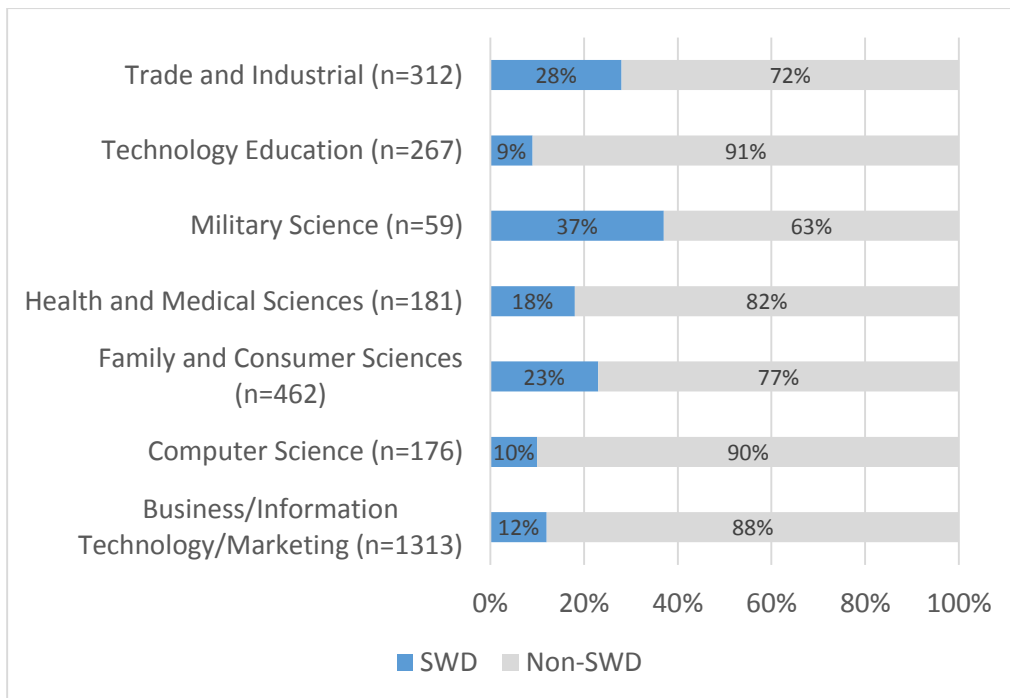


Figure 29: 2012-12 CTE High School Enrollment by SWD Status

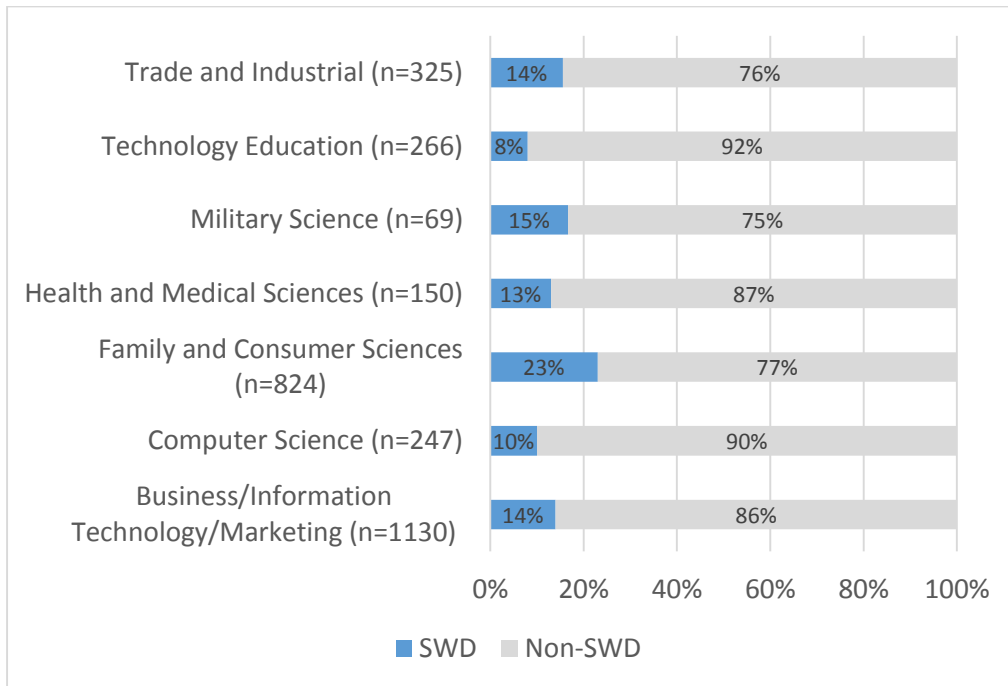


Figure 30: 2011-12 CTE High School Enrollment by SWD Status

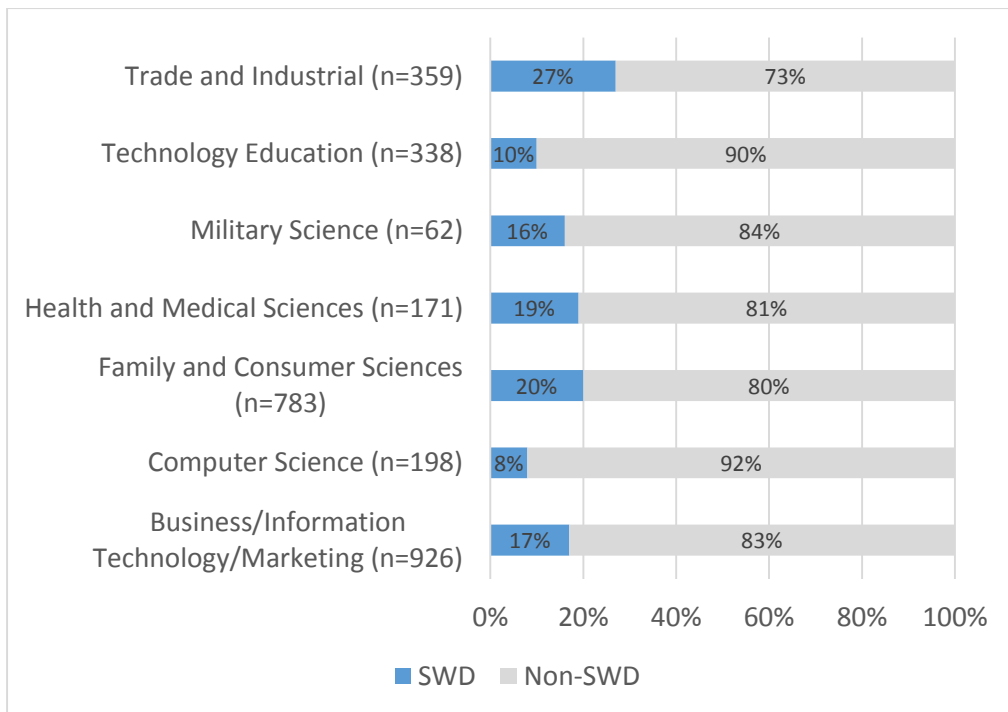


Figure 31: Overall High School Enrollment by Ethnicity

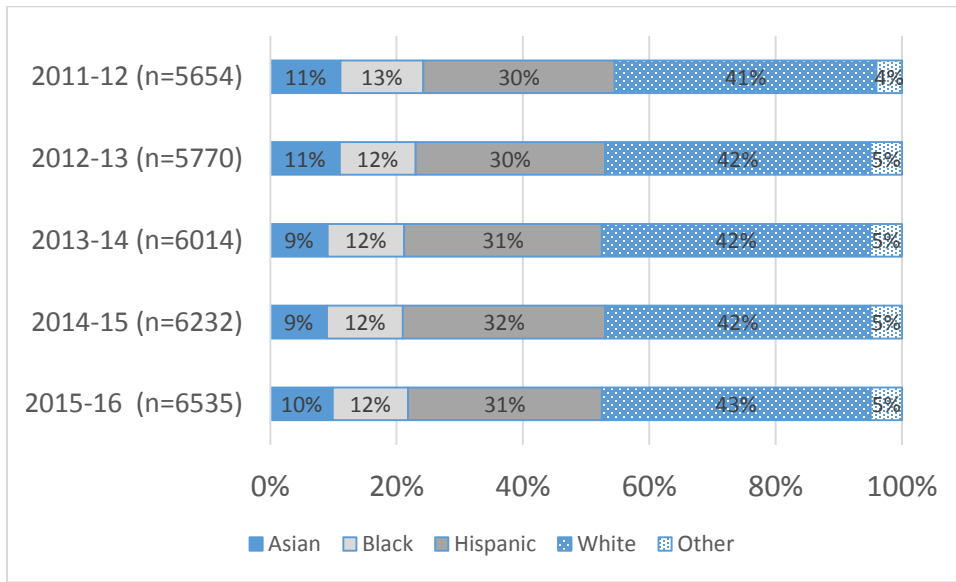


Figure 32: 2015-16 CTE High School Enrollment by Ethnicity

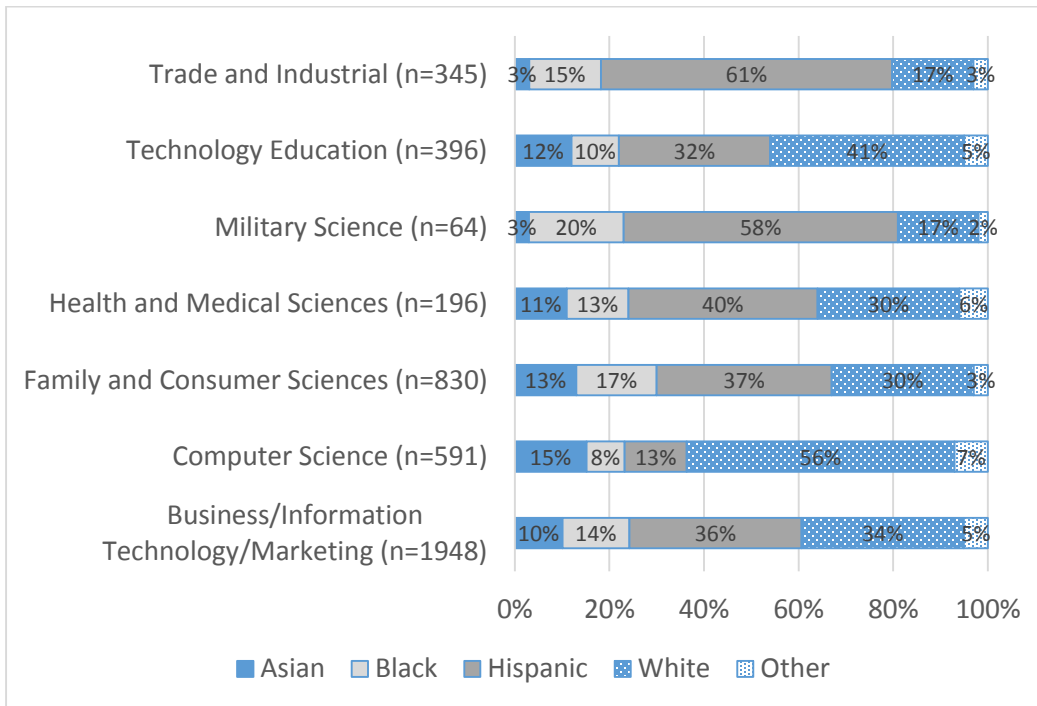


Figure 33: 2014-15 CTE High School Enrollment by Ethnicity

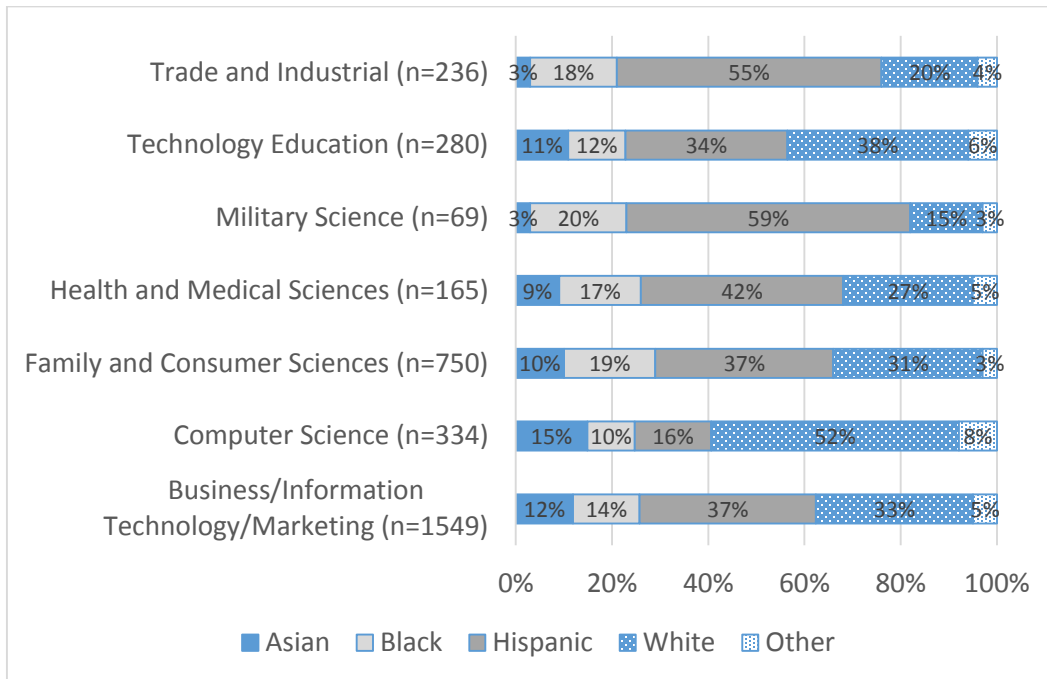


Figure 34: 2013-14 CTE High School Enrollment by Ethnicity

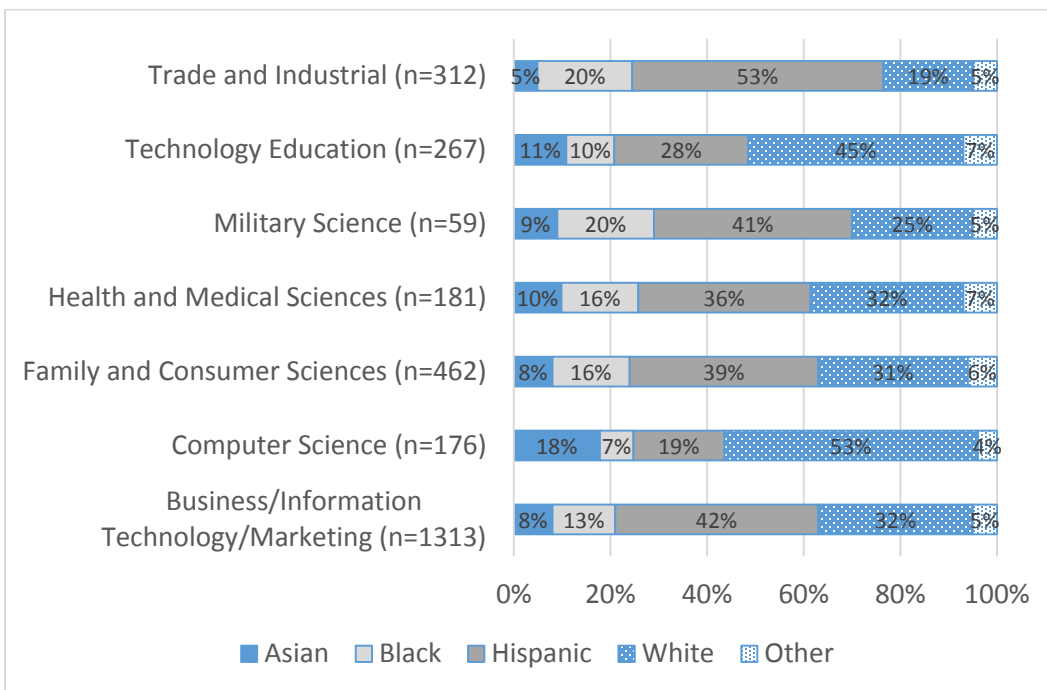


Figure 35: 2012-13 CTE High School Enrollment by Ethnicity

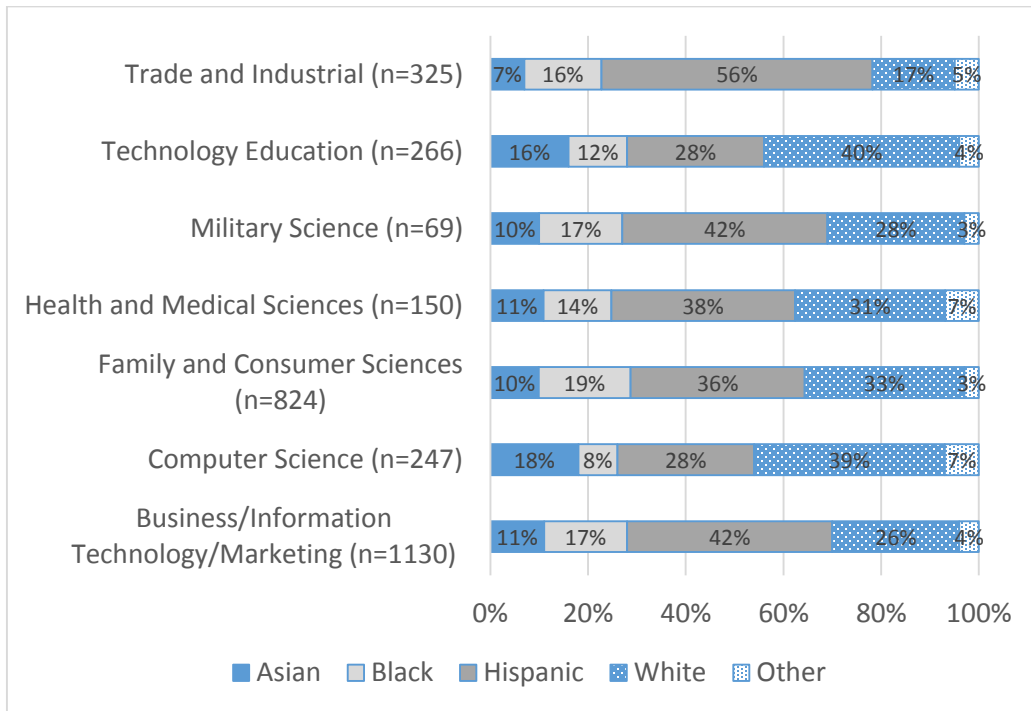


Figure 36: 2011-12 CTE High School Enrollment by Ethnicity

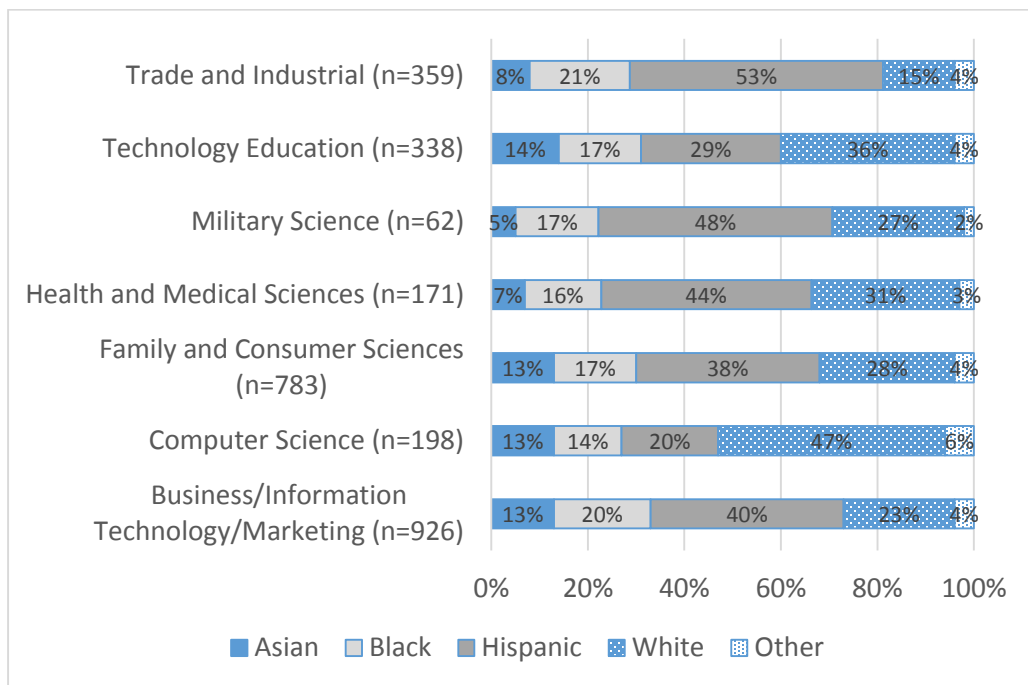


Figure 37: Overall Middle School Enrollment by Gender

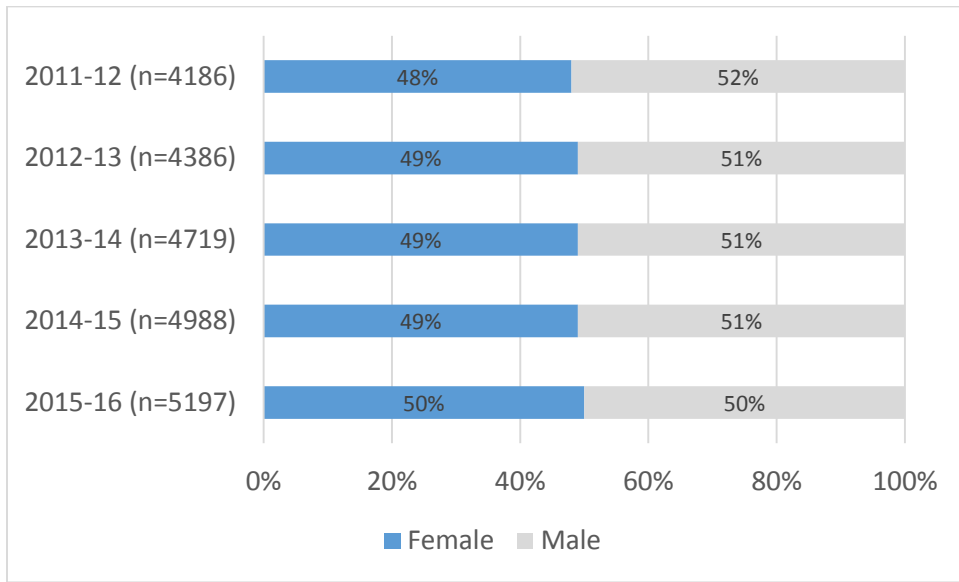


Figure 38: 2015-16 CTE Middle School Enrollment by Gender

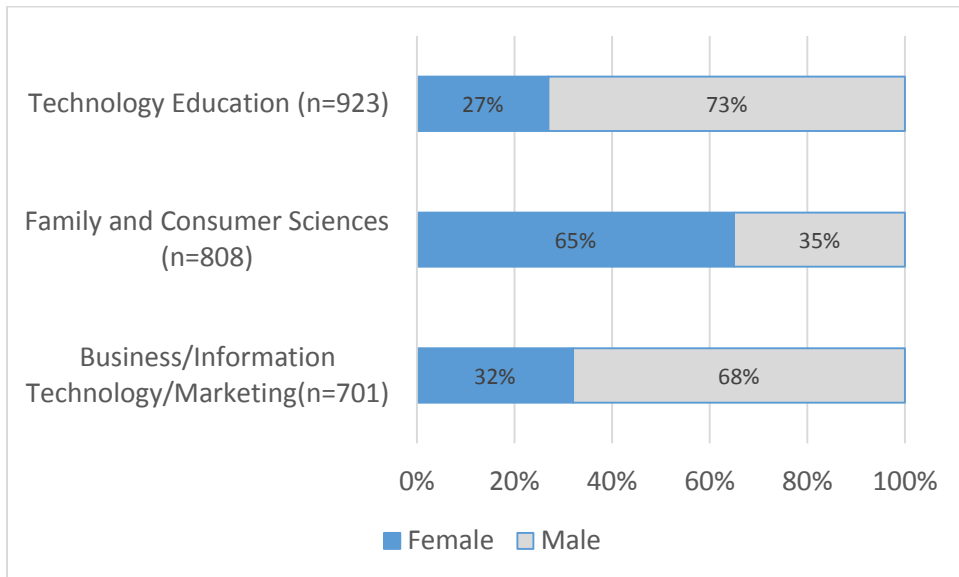


Figure 39: 2014-15 CTE Middle School Enrollment by Gender

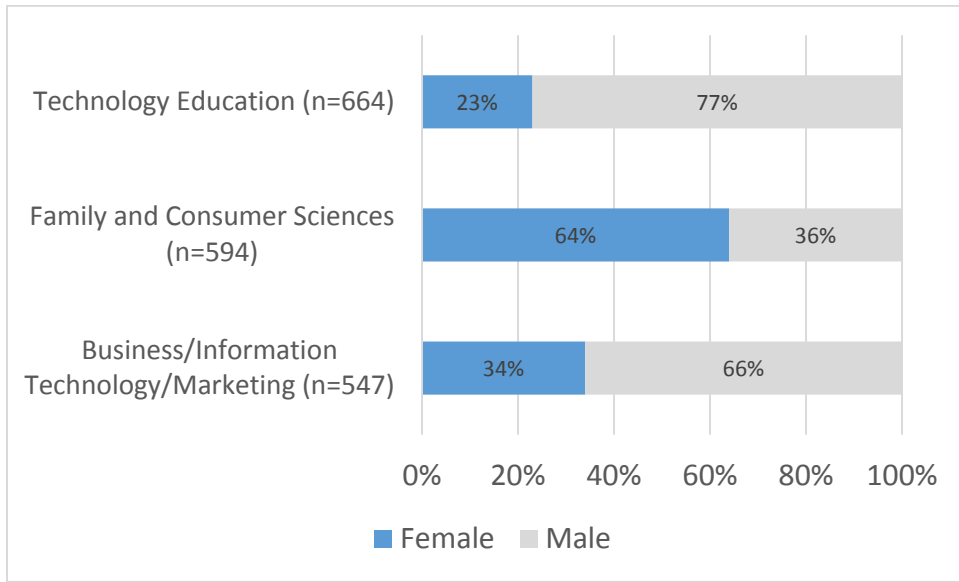


Figure 40: 2013-14 CTE Middle School Enrollment by Gender

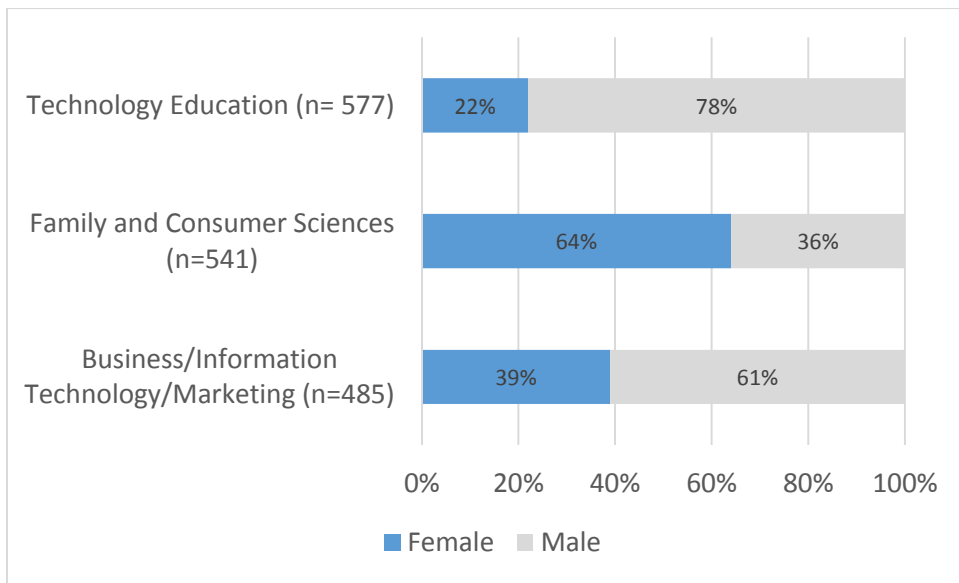


Figure 41: 2012-13 CTE Middle School Enrollment by Gender

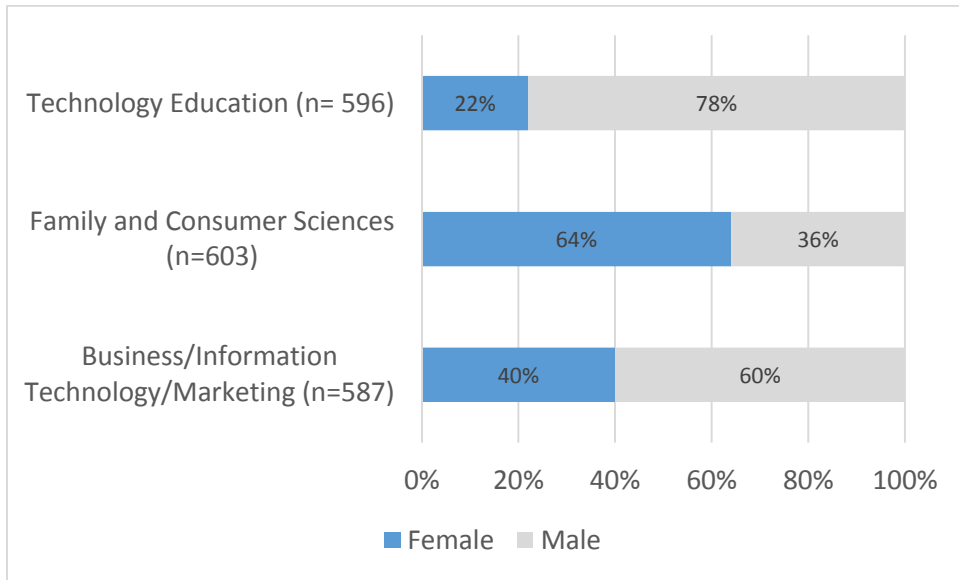


Figure 42: 2011-12 CTE Middle School Enrollment by Gender

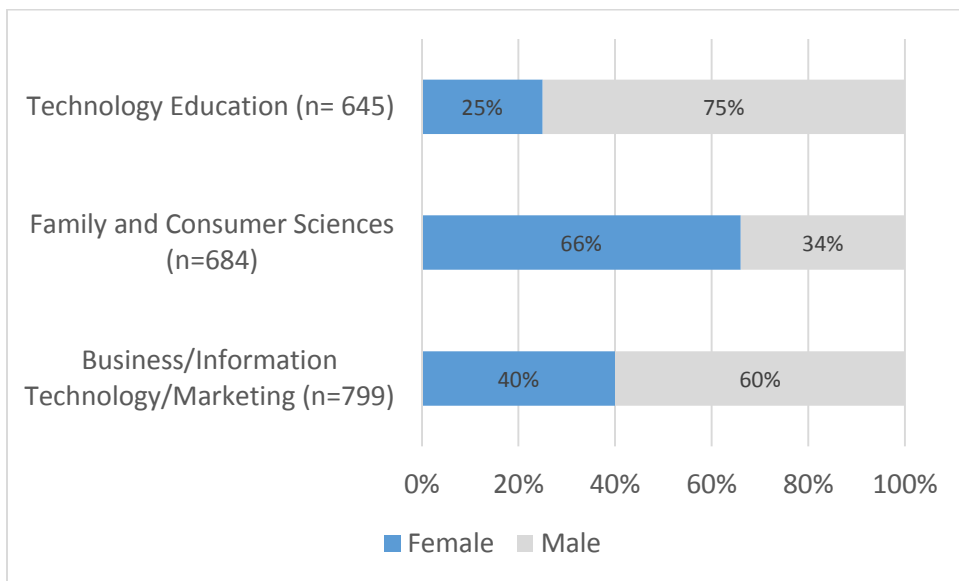


Figure 43: Overall Middle School Enrollment by LEP Status

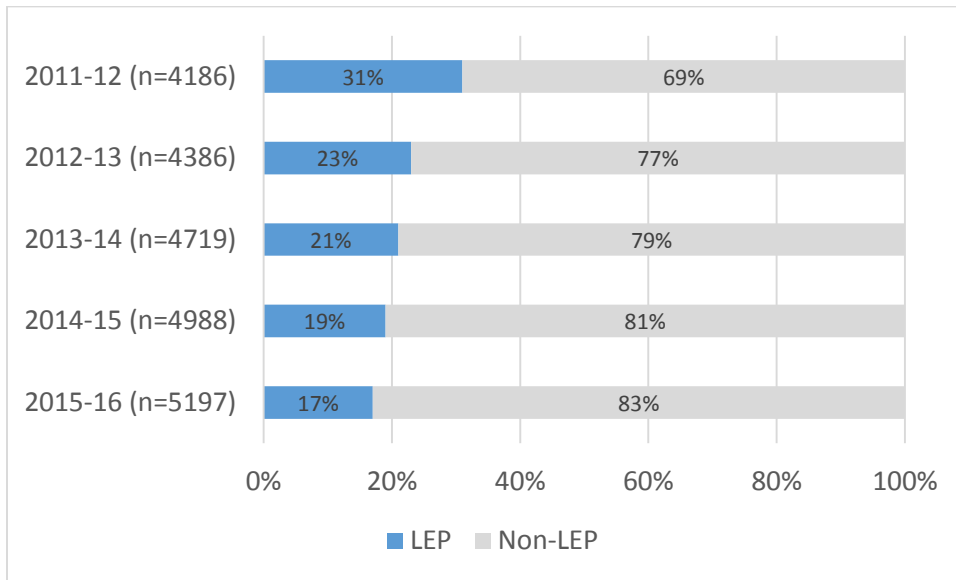


Figure 44: 2015-16 CTE Middle School Enrollment by LEP Status

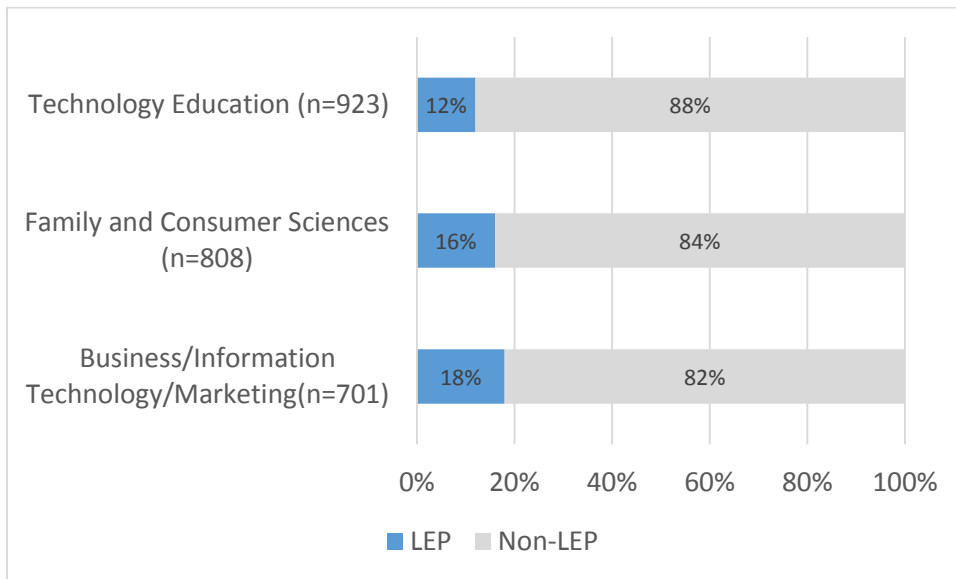


Figure 45: 2014-15 CTE Middle School Enrollment by LEP Status

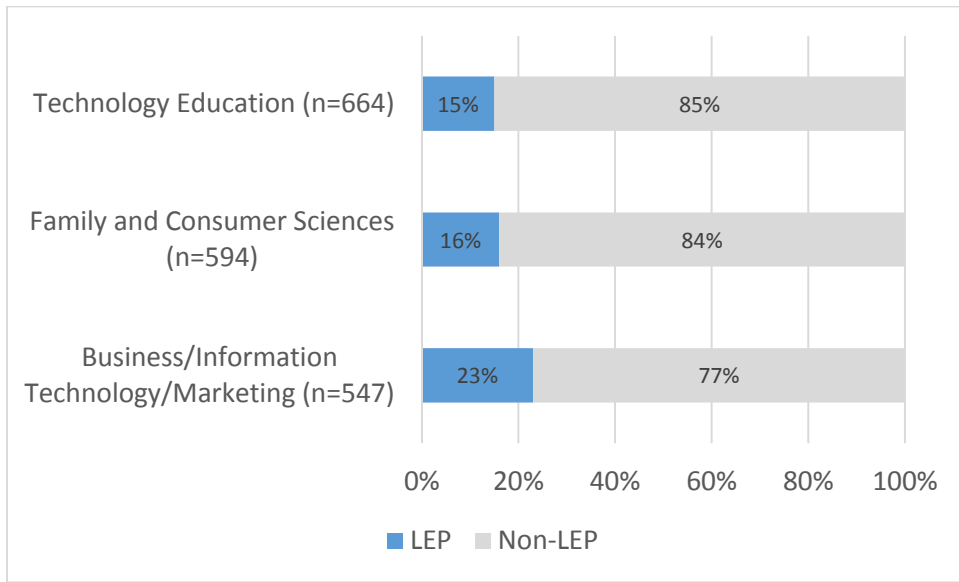


Figure 46: 2013-14 CTE Middle School Enrollment by LEP Status

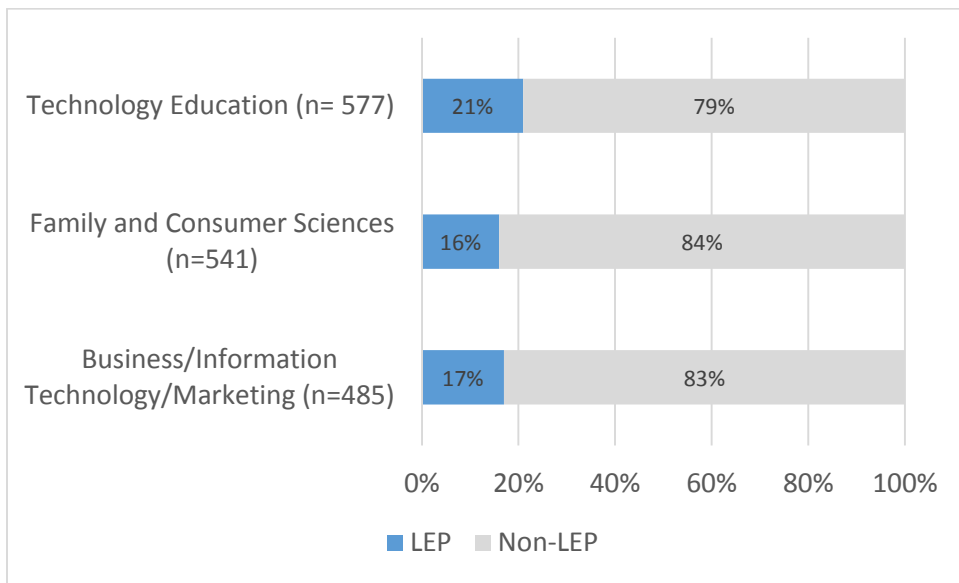


Figure 47: 2012-13 CTE Middle School Enrollment by LEP Status

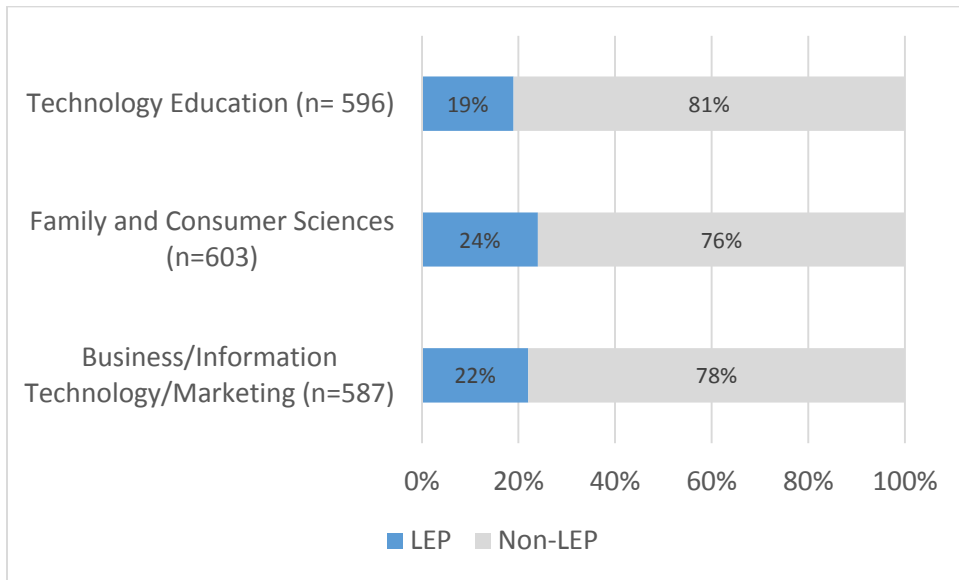


Figure 48: 2011-12 CTE Middle School Enrollment by LEP Status

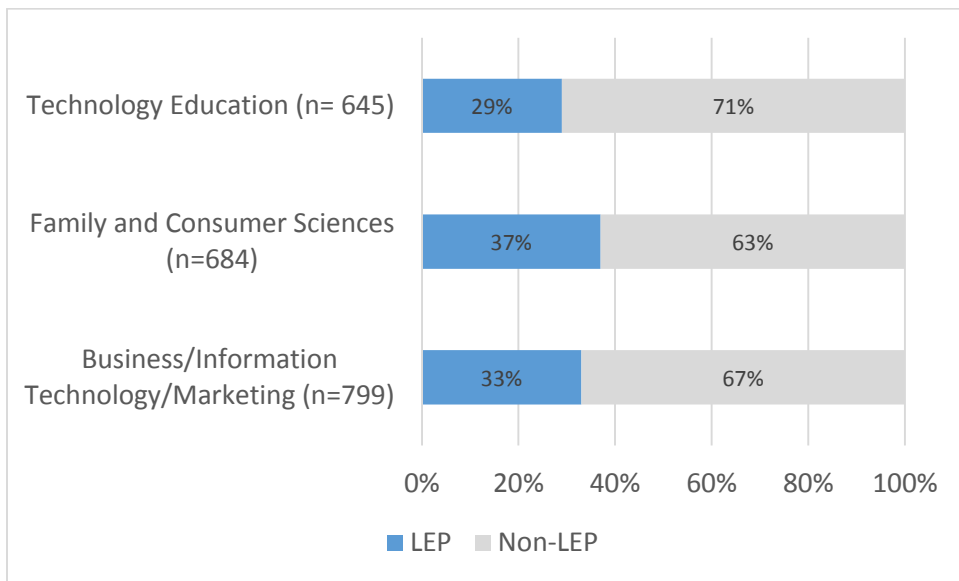


Figure 49: Overall Middle School Enrollment by Disadvantaged Status

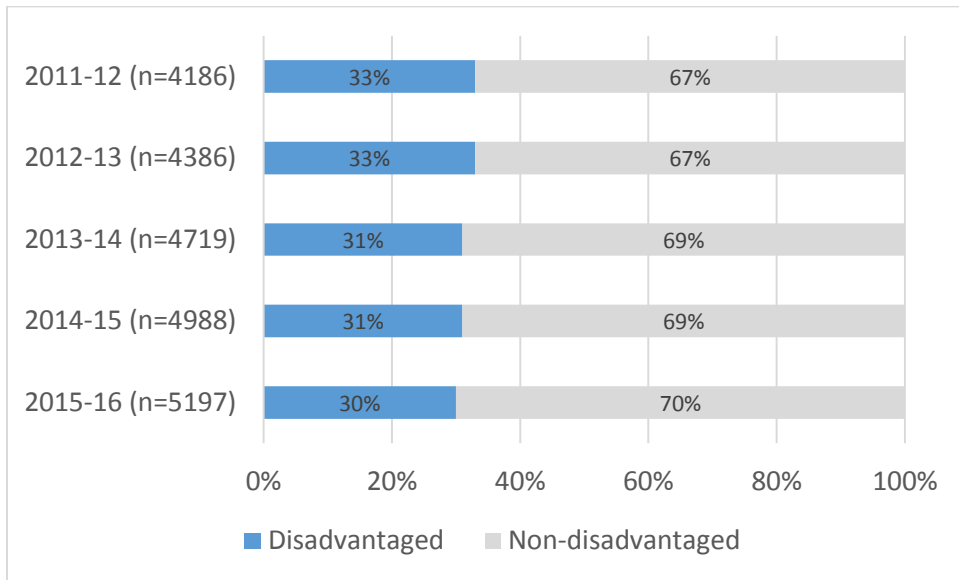


Figure 50: 2015-16 CTE Middle School Enrollment by Disadvantaged Status

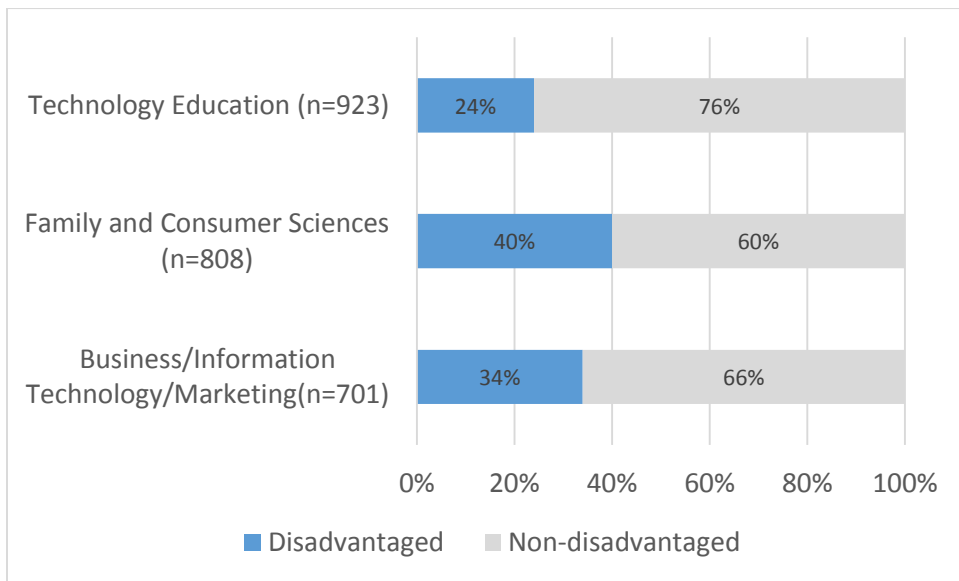


Figure 51: 2014-15 CTE Middle School Enrollment by Disadvantaged Status

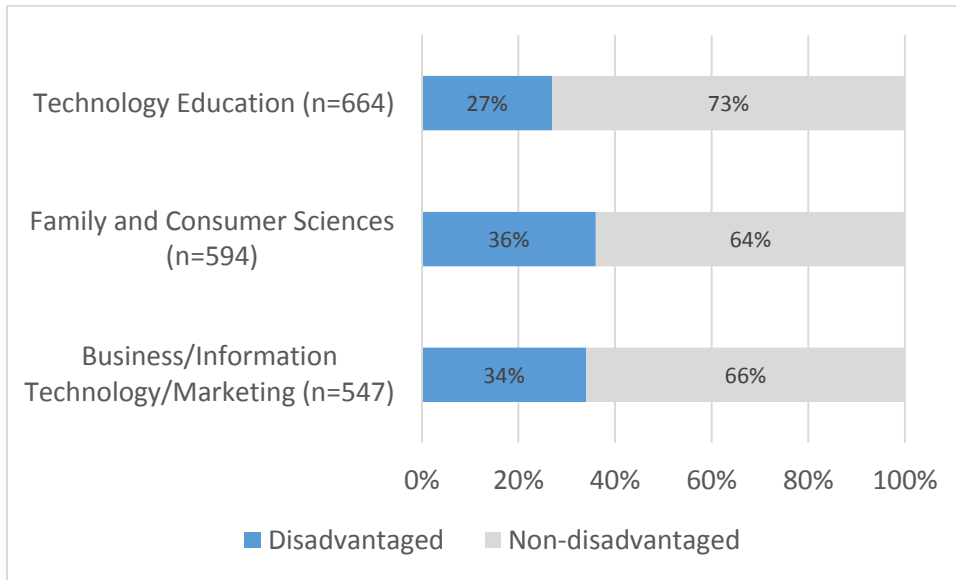


Figure 52: 2013-14 CTE Middle School Enrollment by Disadvantaged Status

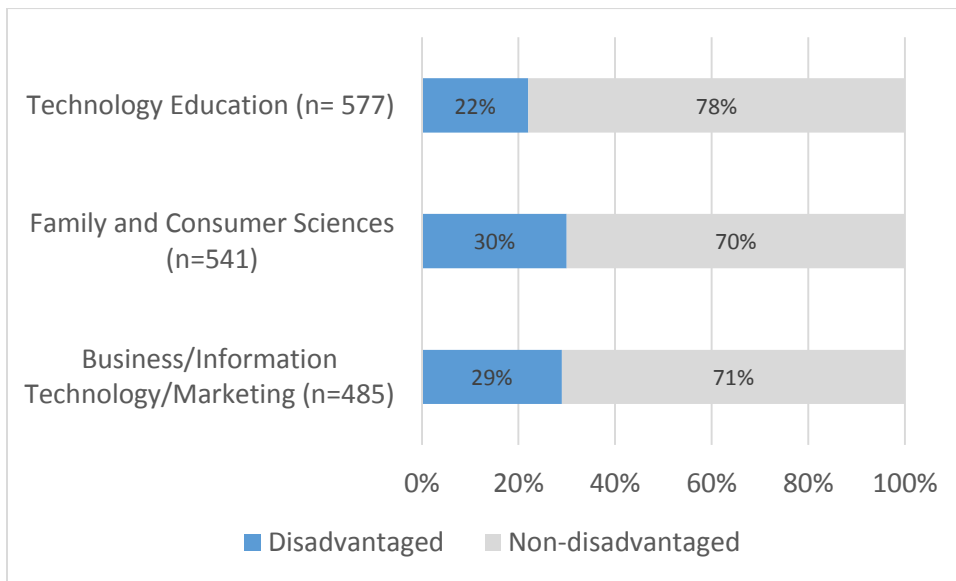


Figure 53: 2012-13 CTE Middle School Enrollment by Disadvantaged Status

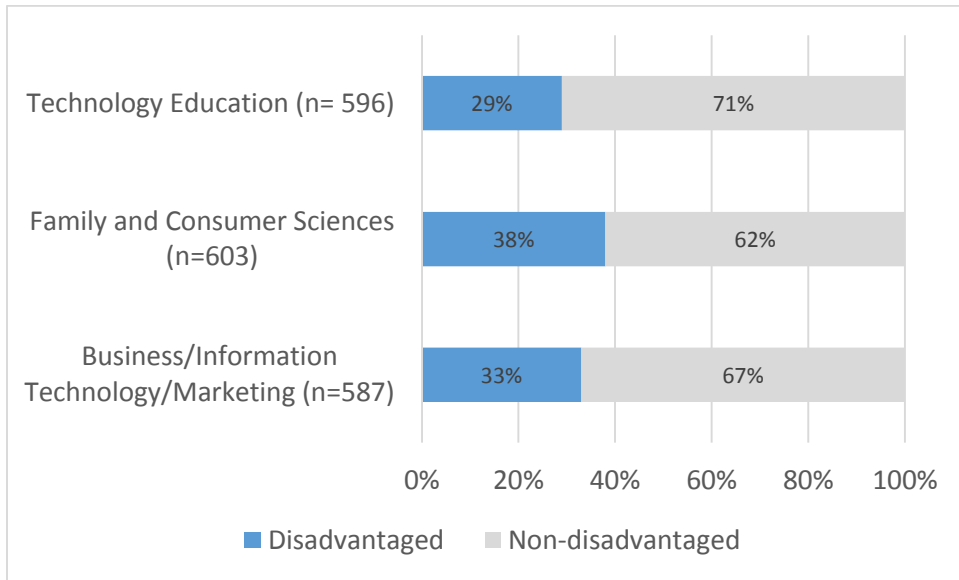


Figure 54: 2011-12 CTE Middle School Enrollment by Disadvantaged Status

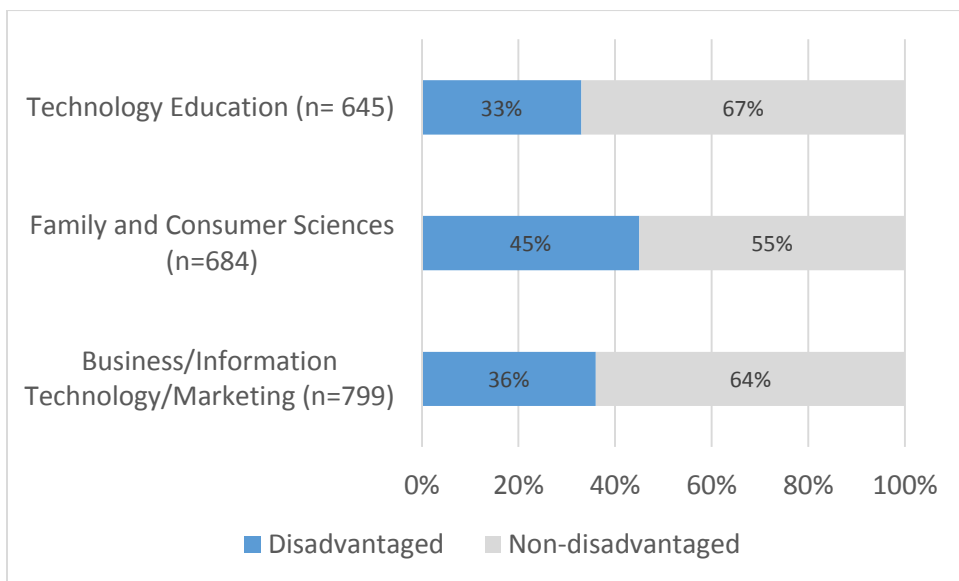


Figure 55: Overall Middle School Enrollment by SWD Status

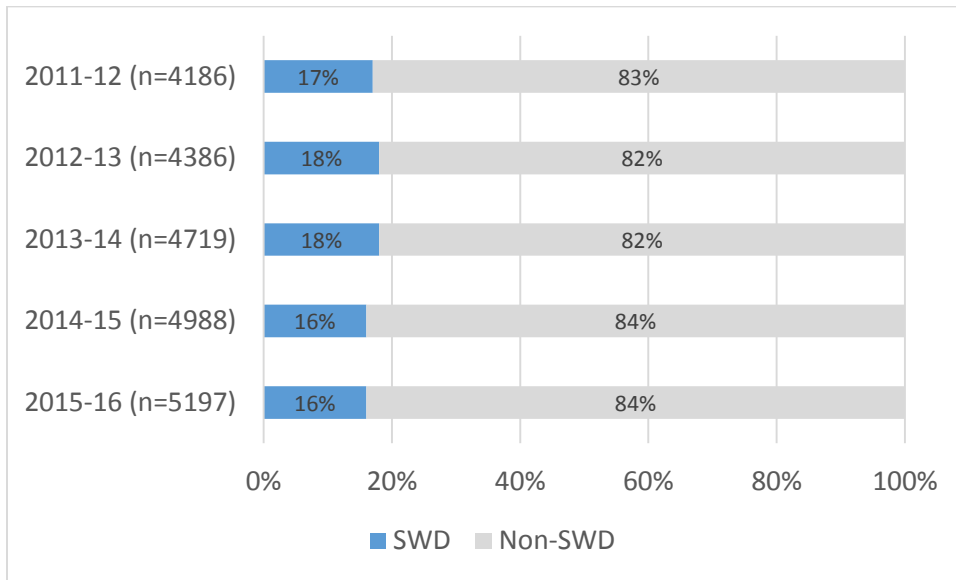


Figure 56: 2015-16 CTE Middle School Enrollment by SWD Status

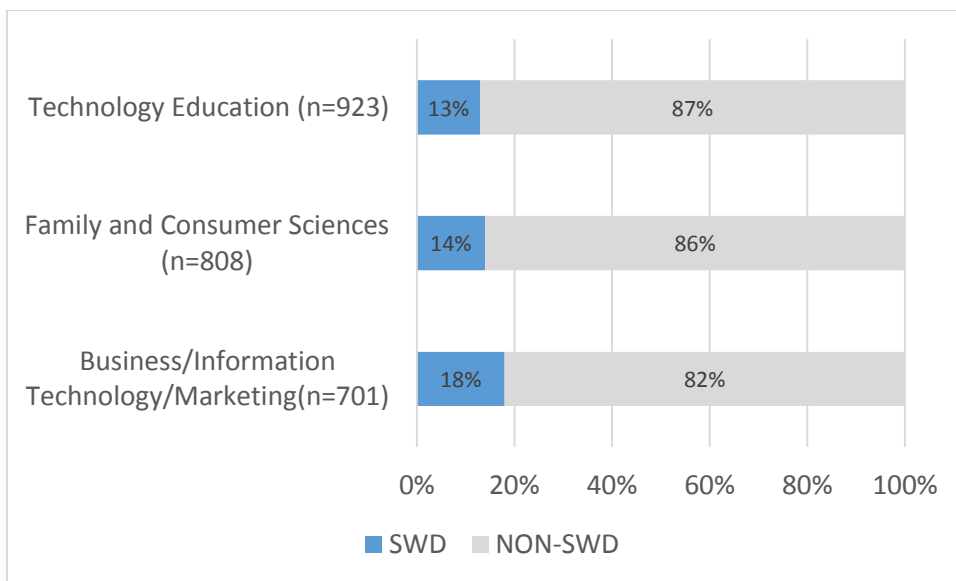


Figure 57: 2014-15 CTE Middle School Enrollment by SWD Status

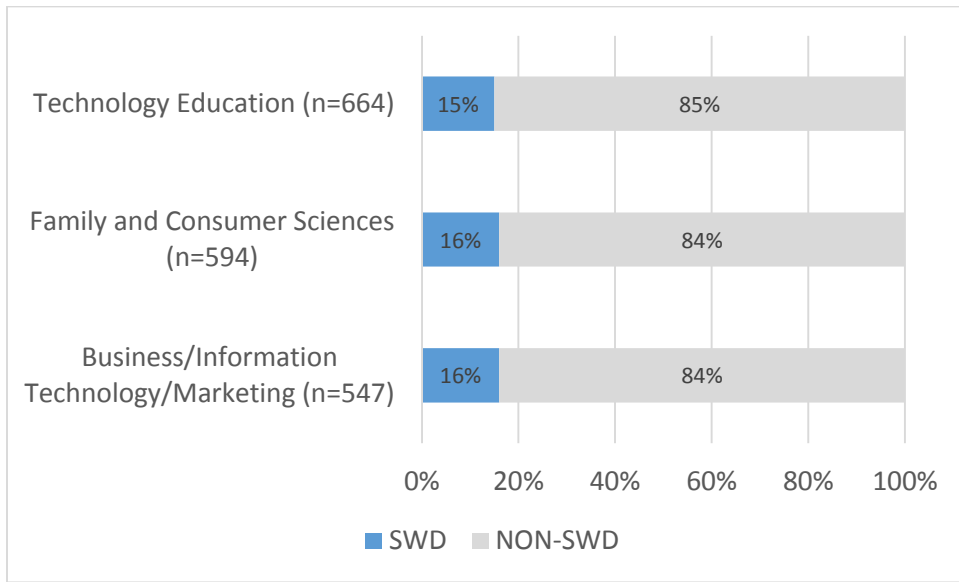


Figure 58: 2013-14 CTE Middle School Enrollment by SWD Status

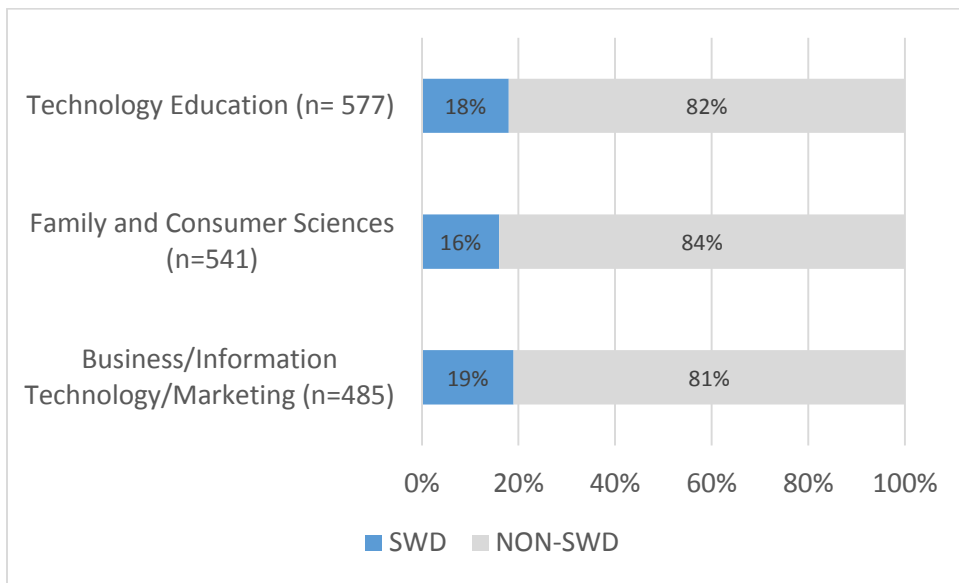


Figure 59: 2012-13 CTE Middle School Enrollment by SWD Status

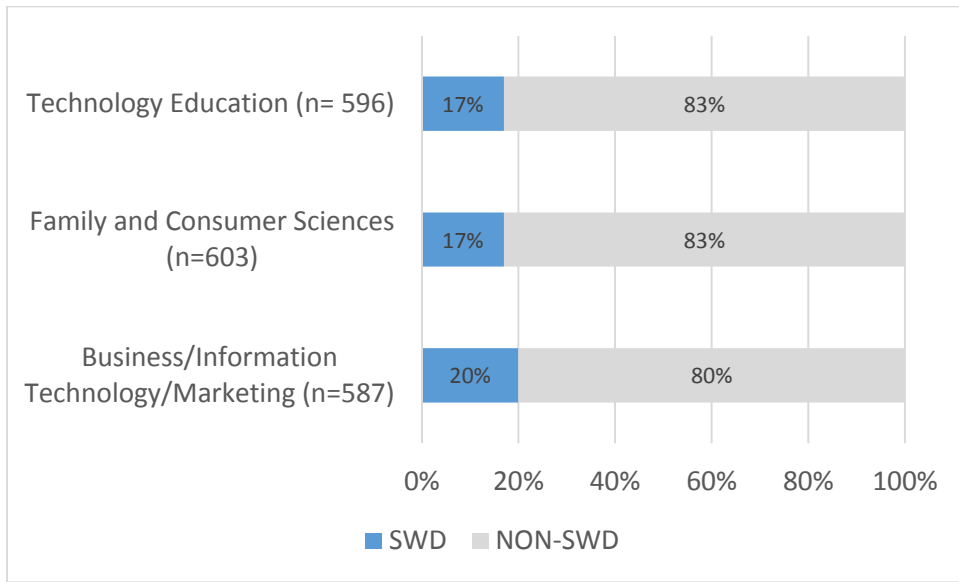


Figure 60: 2011-12 CTE Middle School Enrollment by SWD Status

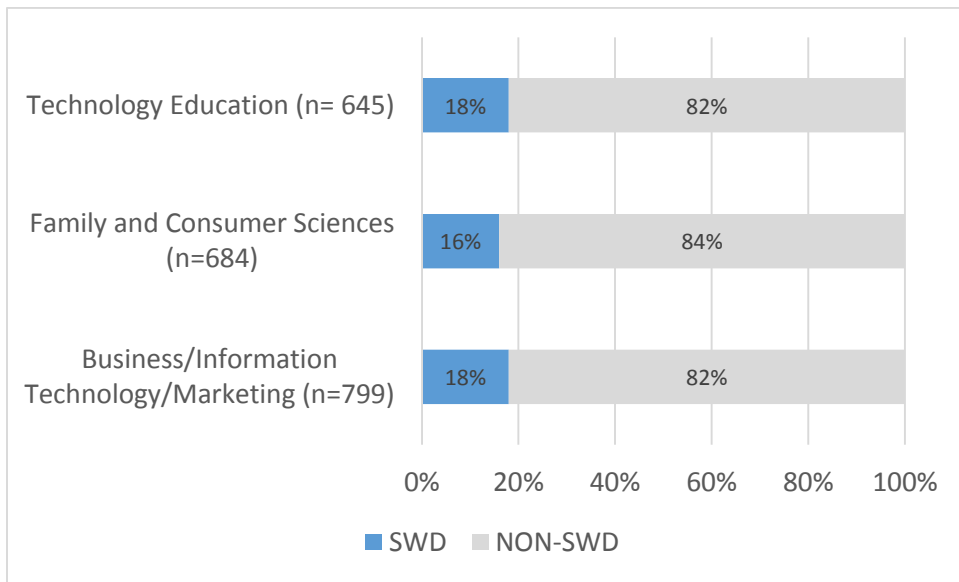


Figure 61: Overall Middle School Enrollment by Ethnicity

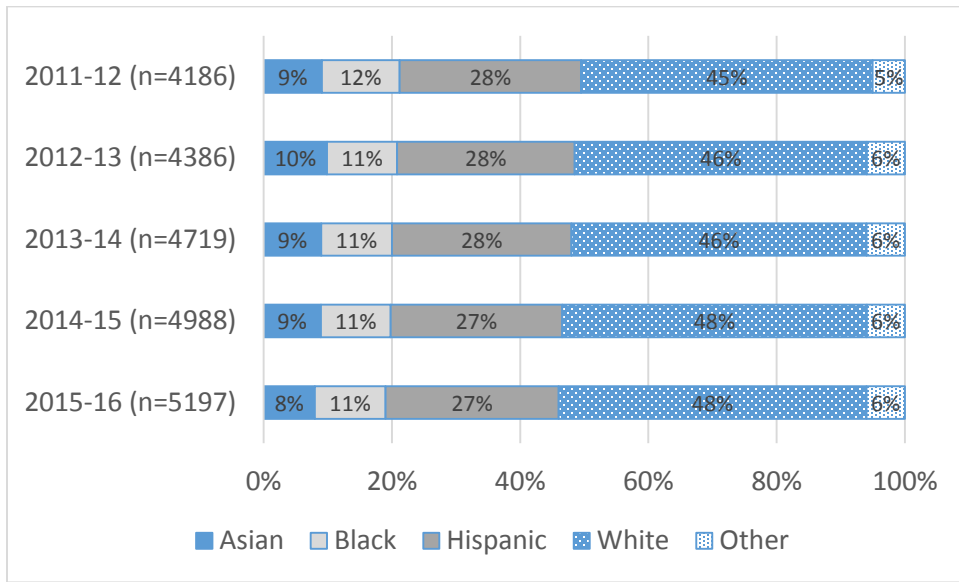


Figure 62: 2015-16 CTE Middle School Enrollment by Ethnicity

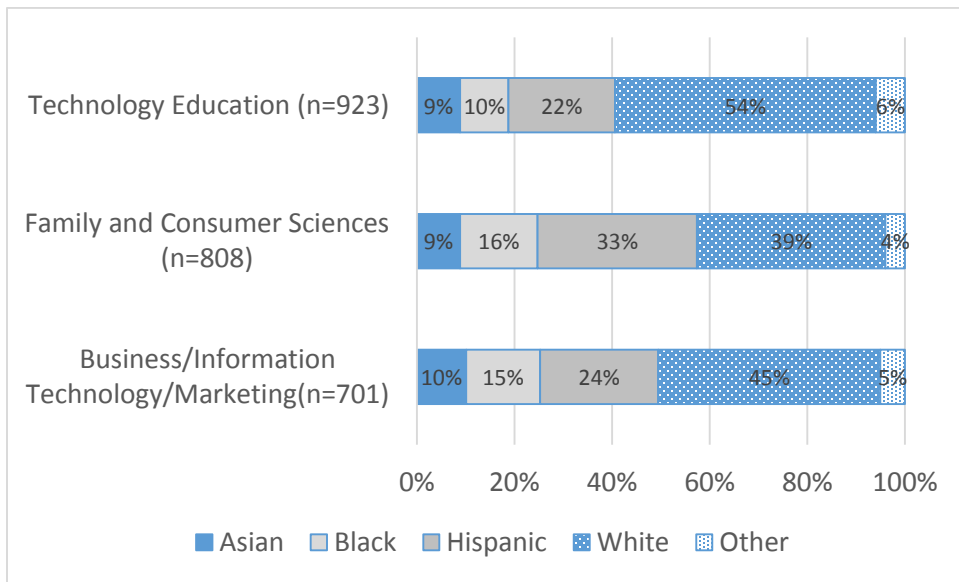


Figure 63: 2014-15 CTE Middle School Enrollment by Ethnicity

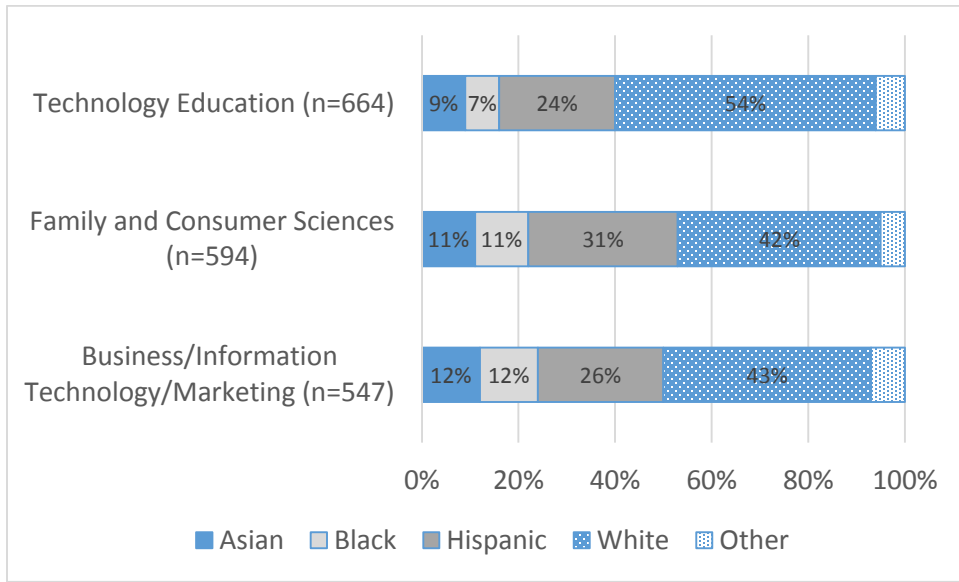


Figure 64: 2013-14 CTE Middle School Enrollment by Ethnicity

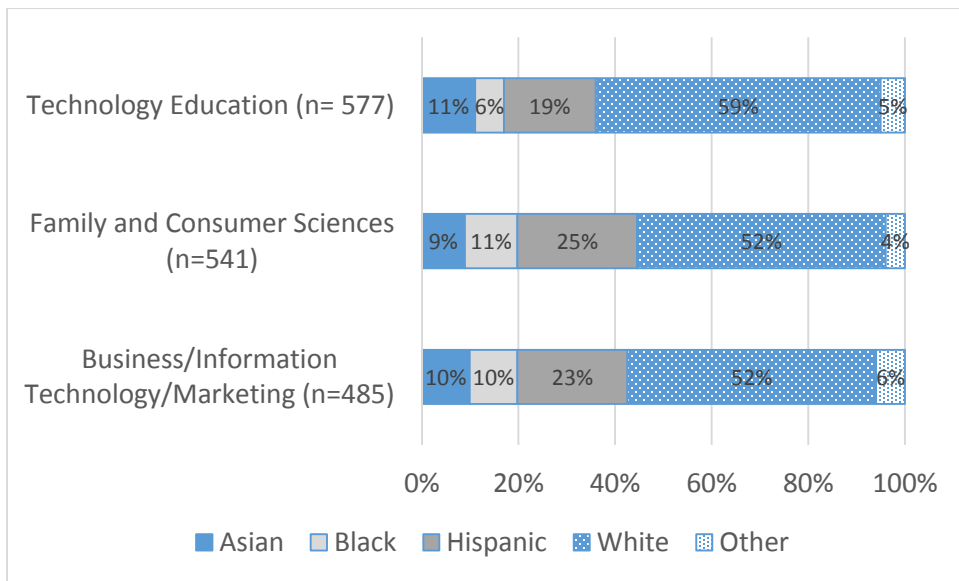


Figure 65: 2012-13 CTE Middle School Enrollment by Ethnicity

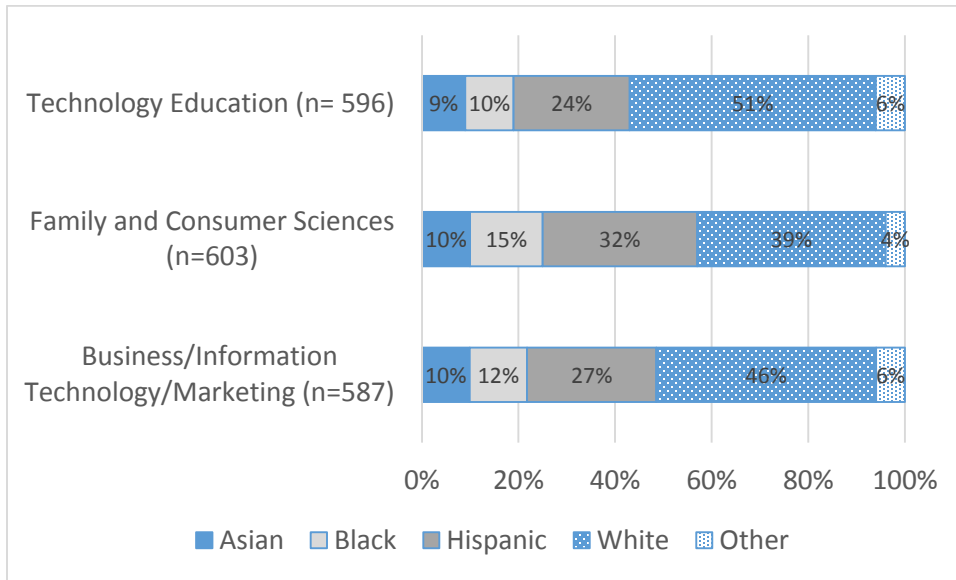
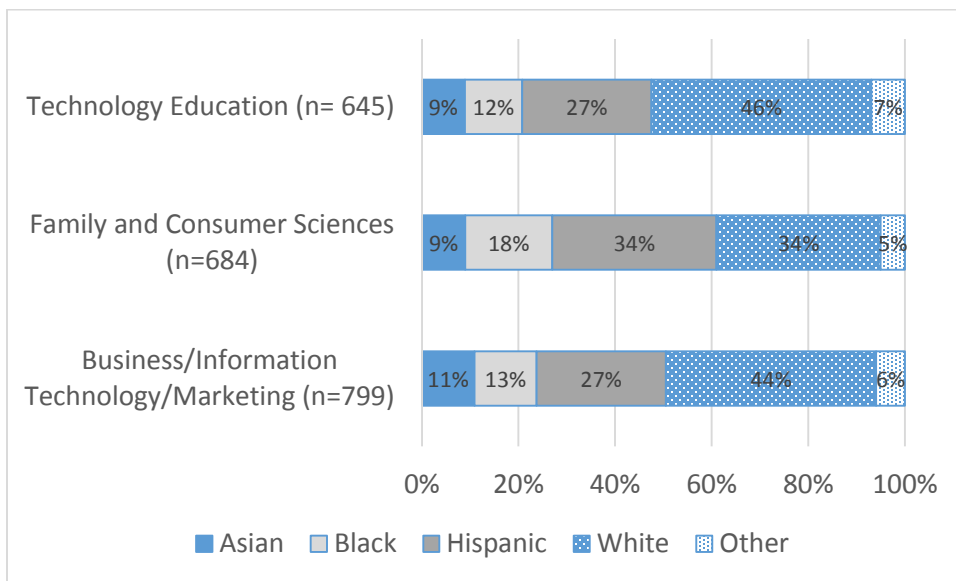


Figure 66: 2011-13 CTE Middle School Enrollment by Ethnicity



CTE Finishers

Students who take CTE courses may **finish a sequence**, which is defined as taking two sequential CTE courses in the same program area (for example, Auto I and Auto II). Through 2012-13, students were also considered a “finisher” if they took just one class in EMT, physical therapy/sports medicine, and forensics. Students are considered to be **finishers** until they graduate. Upon graduation, they are considered **completers**.

Figure 1: Number of CTE Finishers

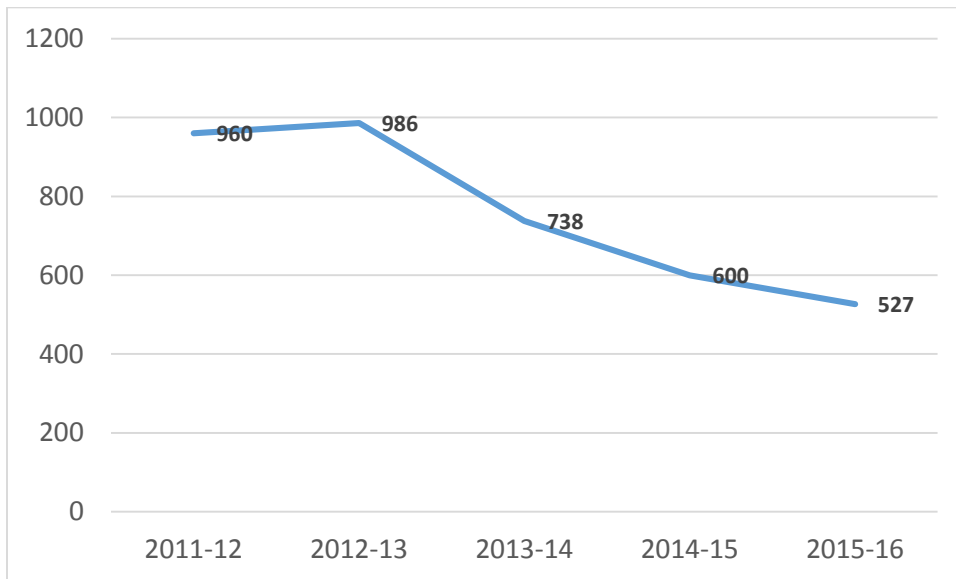


Figure 2: CTE Finishers by Gender

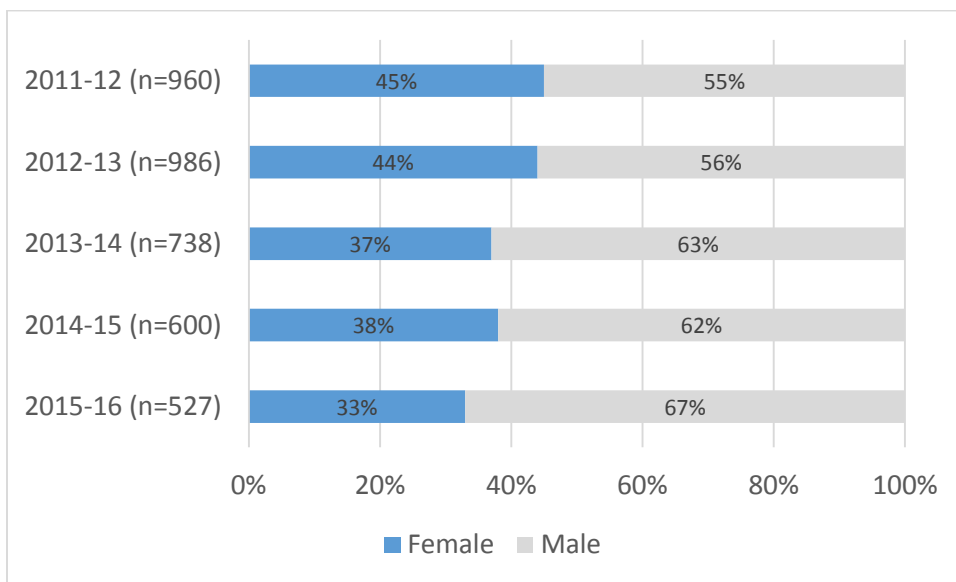


Figure 3: CTE Finishers by LEP Status

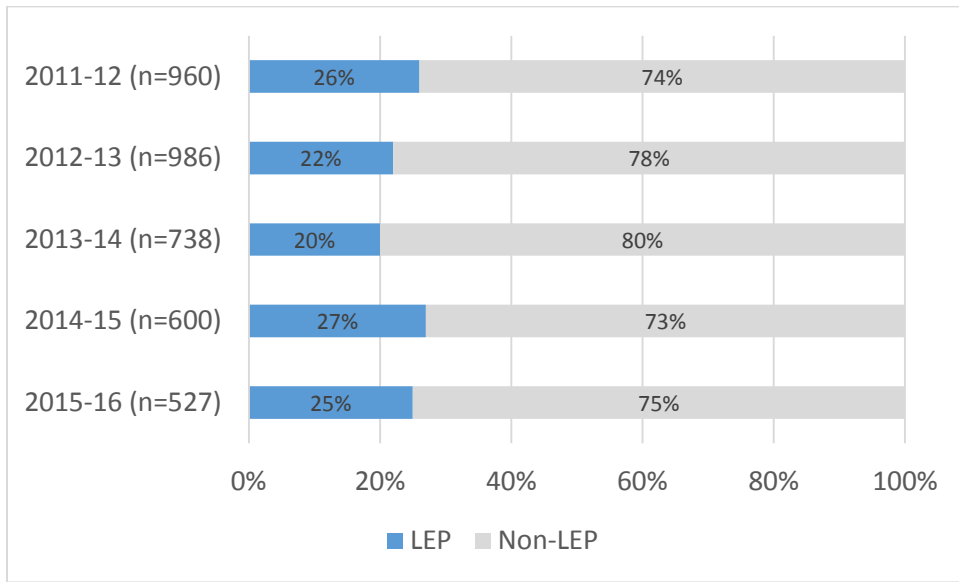


Figure 4: CTE Finishers by Disadvantaged Status

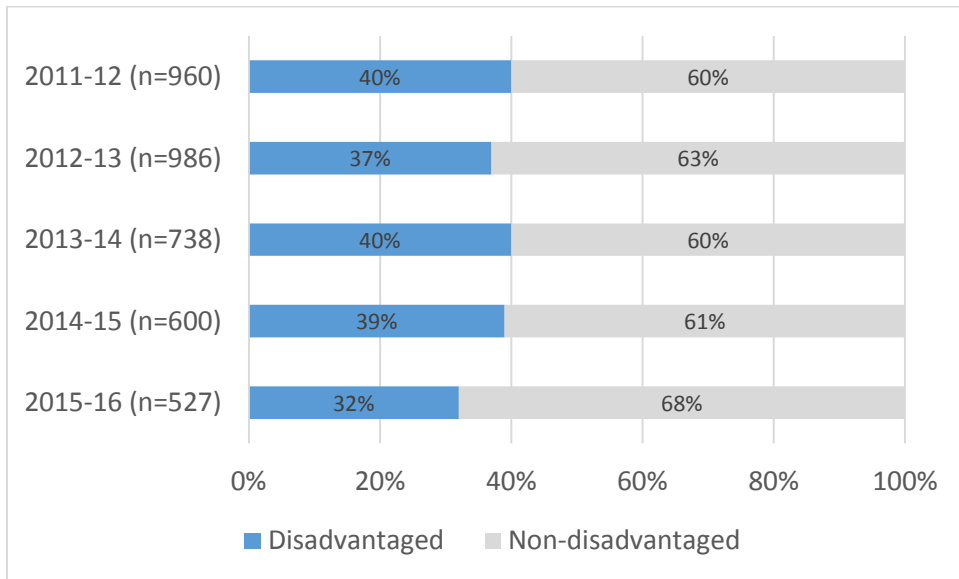


Figure 5: CTE Finishers by SWD Status

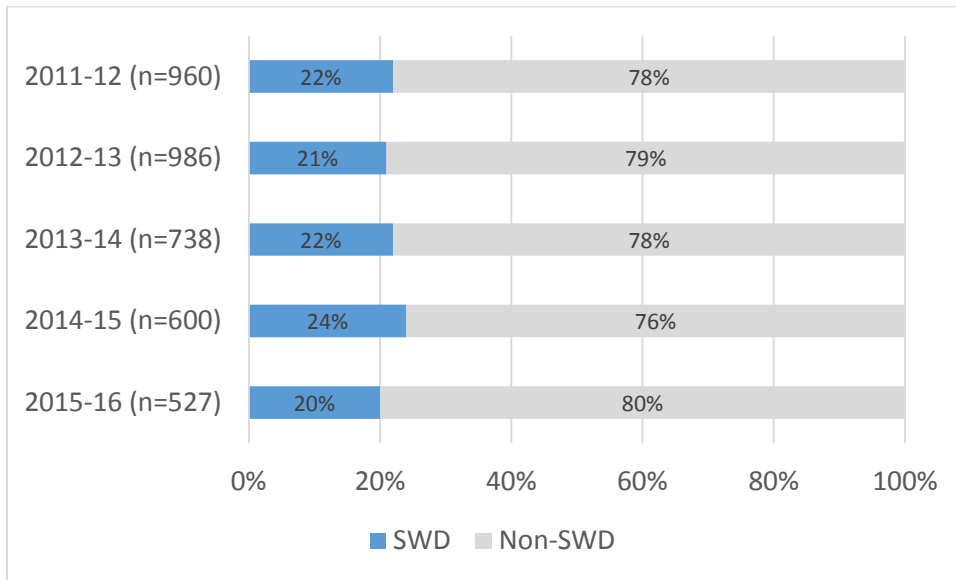
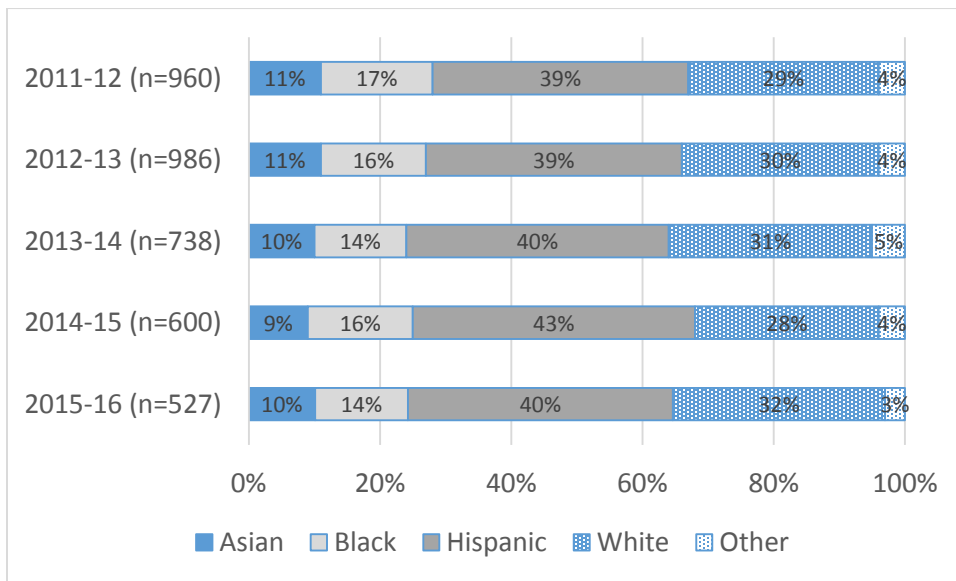


Figure 6: CTE Finishers by Ethnicity



Student Organization Participation

Career and Technical Student Organizations (CTSOs) are national organizations that provide students with leadership and workplace experiences and offer competitions at the regional, state, and national levels. APS CTE students are encouraged to participate in the following CTSOs:

- **Future Business Leaders of America (FBLA)**¹: aims to help prepare students for careers in business through leadership development, competitions, and community service
- **Technology Student Association (TSA)**²: offers co-curricular activities, competitive events, and related programs to foster leadership in technology, innovation, design, and engineering
- **SkillsUSA**³: aims to improve the quality of the skilled workforce through employability, technical, and professional skills training.
- **Family Career and Community Leaders of America (FCCLA)**⁴: aims to promote personal growth and leadership through family and consumer sciences education, focusing on multiple roles of family members, wage earners, and community leaders
- **DECA**⁵: aims to prepare leaders and entrepreneurs for careers in marketing, hospitality, and management

In the spring of 2016, the Office of Planning and Evaluation collected data from each CTE teacher on the number of their current students who participated in a given student organization at the class, regional, state, or national level. Results are displayed in **Table 1**.

Table 1: Number of Students Participating in Student Organizations, 2015-16

Organization	In-Class Only	Regional	State	National
Future Business Leaders of America	65			
Technology Student Association	143	48	38	6
Skills USA	86	44	34	16
Family Career and Community Leaders of America	137		5	
DECA		30	16	4

¹ <http://www.fbلا-pbl.org>

² <http://www.tsaweb.org>

³ <http://www.skillsusa.org>

⁴ <http://www.fcclainc.org>

⁵ <https://www.deca.org>

Workforce Requirements and CTE Offerings

This appendix includes APS CTE course offerings, available industry certifications, and information about local job openings from July 1, 2015 through June 30, 2016. Job openings are categorized by occupation, hard and soft skills, and certification.

APS CTE Course Offerings

Middle School

At the middle school level, CTE courses are available in the following areas:

- **Technology Education** (For example: Exploring Technology, Technological Systems, Inventions and Innovations)
- **Family and Consumer Sciences** (For example: Exploring Family and Consumer Science, Teen Living, Life Management Skills, Taking Charge)
- **Business and Information Technology** (For example: Digital Input Technologies, Exploring Computer Keyboarding Applications, Multimedia Technology, Investigating Computer Science)

High School

At the high school level, the APS CTAE program offers courses in six program areas:

- **Trade and Industrial Programs** (For example: Air Force JROTC, Automotive Technology, Cosmetology, Culinary Arts and Sciences, Electricity, Physical Therapy/Sports Medicine Technology, Television Production)
- **Technology Education** (For example: Engineering, Project Lead the Way, Computer Assisted Drawing/Architectural Drawing, IB Design Technology)
- **Military Science** (JROTC courses)
- **Health and Medical Sciences** (For example: Physical Therapy/Sports Medicine, EMT, Pharmacy Tech, Animal Science)
- **Family and Consumer Sciences** (For example: Child Development and Parenting, Early Childhood Education, Interior and Fashion Design, Food and Fitness)
- **Computer Science** (For example: Computer Science, AP Computer Science, Computer Information Systems)
- **Business and Information Technology and Marketing** (For example: Introduction to Business and Marketing, Cybersecurity, Advanced Topics in Businesses and Marketing, Entrepreneurship)

Tables 1 and 2 show the CTE sequence options at the comprehensive high schools and at the Career Center.

Table 1: CTE Sequence Options at Comprehensive High Schools

Sequence Options of the Career and Technical Education Courses at Wakefield, Washington-Lee, and Yorktown High Schools			
Graduation requirements for the Standard Diploma require a least two sequential electives. In CTE this requirement may be fulfilled using one of the options listed below. Please see your counselor for more details.			
I. Business and Communication			
Arts, A/V Technology and Communications	<u>Sequence Option 1:</u> Technology Computer Applications (26153) DE and Computer Information Systems (26614) DE	<u>Sequence Option 2:</u> Introduction to Business & Marketing (26112) and Advanced Topics in Business & Marketing (28137)	<u>Sequence Option 3:</u> Design, Multimedia and Web Technologies (26630) & Computer Information Systems (26614) DE and Advanced Topics in Business & Marketing (28137)
Business, Management and Administration	<u>Sequence Option 1:</u> Technology Computer Applications (26153) DE and Computer Information Systems (26614) DE	<u>Sequence Option 2:</u> Introduction to Business & Marketing (26112) and Advanced Topics in Business & Marketing (28137)	<u>Sequence Option 3:</u> Design, Multimedia and Web Technologies (26630) & Computer Information Systems (26614) DE and Advanced Topics in Business & Marketing (28137)
Information Technology	<u>Sequence Option 1:</u> Introduction to Information Technology (26116) and Advanced Topics in Information Technology (26648) DE	<u>Sequence Option 2:</u> Computer Science (26639) and AP Computer Science (33185) or IB Computer Science (36570)*	<u>Sequence Option 3:</u> Computer Networking & Internet Applications (29800) and Computer Science (26639)
Marketing	<u>Sequence Option 1:</u> Entrepreneurship (29094) and Introduction to Business & Marketing (26112)	<u>Sequence Option 2:</u> Introduction to Business & Marketing (26112) and IB Business Management (36114) * or Advanced Topics in Business & Marketing (28137)	<u>Sequence Option 3:</u> IB Business Management (36114) * and Advanced Topics in Business & Marketing (28137)
II. Industry and Engineering			
Science, Technology, Engineering and Mathematics	<u>Sequence Option 1:</u> Engineering I: Introduction to Engineering Design (28491) and Engineering II: Principles of Engineering (28492)	<u>Sequence Option 2:</u> Computer Assisted Technical Drawing (28439) DE and Computer Assisted Architectural Drawing (28408) DE	
II. Health and Human Services			
Agriculture, Food and Natural Resources	<u>Sequence Option 1:</u> Food & Fitness I (28272) and Food & Fitness II (28273) and Child Development & Parenting I (28230) and Child Development & Parenting II (28231)		
Human Services	<u>Sequence Option 1:</u> Child Development & Parenting I (28230) and Child Development & Parenting II (28231) and Early Childhood I (28235)	<u>Sequence Option 2:</u> Child Development & Parenting I (28230) and Child Development & Parenting II (28231) and Teachers for Tomorrow (29062)	<u>Sequence Option 3:</u> Teachers for Tomorrow (29062) and Early Childhood Education I (28235)

DE – Course is also available for qualified students to earn dual-enrolled college credit. Please see course description or more information.

*IB courses are only offered at Washington-Lee High School

**Additional levels of some sequences are available at the comprehensive high schools. Other CTE courses are also available at the Arlington Career Center. Please see page 78 for more information.

- *Students may earn a selected verified credit upon completion of a CTE sequence and successfully passing a state approved industry certification for that sequence.*
- *Each CTE course provides an opportunity for industry certification for students entering high school in 2013-2014 and beyond to fulfill the career and technical certification required for the Standard Diploma graduation requirement.*

Table 2: CTE Sequence Options at Career Center

Sequence Options of the Career and Technical Education Courses at the Arlington Career Center			
Graduation requirements for the Standard Diploma require a least two sequential electives. In CTE this requirement may be fulfilled using one of the options listed below. In some cases, the option is a two credit, two period course for which a student earns the sequence. Please see your counselor for more details.			
III. Business and Communication			
Arts, A/V Technology and Communications	<u>Sequence Option 1:</u> Photo and Video I (28625) and Photo and Video II (28626)	<u>Sequence Option 2:</u> Digital Animation (28457) and Graphic Communication System (28458)	<u>Sequence Option 3:</u> Television Production I (28689) and Television & Multimedia Production II (28690) DE Television & Multimedia Production III(28691)
Business Management & Administration	<u>Sequence Option 1:</u> Advanced Topics in Business and Marketing, DE (28138)		
Information Technology	<u>Sequence Option 1:</u> Introduction to Information Technology (28483) and Computer Programming (26647) DE	<u>Sequence Option 2:</u> Advanced Topics in Information Technology, DE (26645)	<u>Sequence Option 3:</u> Computer Hardware, Networking, and Cyber Security, DE (26635)
II. Industry and Engineering			
Transportation, Distribution, and Logistics	<u>Sequence Option 1:</u> Automotive Technology I (28509) DE and Automotive Technology II (28507) DE **	<u>Sequence Option 2:</u> Auto Body Repair I (28677) and Auto Body Repair II (28678)	
Architecture and Construction	<u>Sequence Option 1:</u> Construction Technology (28512) and Computer Assisted Architectural Drawing (28408) DE	<u>Sequence Option 2:</u> Construction Technology (28512) and Sustainable and Renewable Technologies (28460)	<u>Sequence Option 3:</u> Electricity I (28534) and Electricity II (28535) DE
Science, Technology, Engineering and Mathematics	<u>Sequence Option 1:</u> Computer Assisted Architectural Drawing (28408) DE and Comp-Assisted Technical Drawing (28439) DE	<u>Sequence Option 2:</u> Engineering I: Intro to Engineering Design (28491) and Engineering II: Principals of Engineering (28492)	<u>Sequence Option 3:</u> Computer Assisted Technical Drawing (28439) DE and Computer Assisted Engineering Drawing (28438)
III. Health and Human Services			
Agriculture, Food and Natural Resources	<u>Sequence Option 1:</u> Small Animal Care I (28064) and Veterinary Science (28061)	<u>Sequence Option 2:</u> Veterinary Assistant I (28062) and Veterinary Assistant II (28063)	
Health Sciences	<u>Sequence Option 1:</u> Health Sciences (28303) DE and Medical Terminology (28383) DE**	<u>Sequence Option 2:</u> Health Sciences (28303) DE and Medical Terminology (28383) DE** and Physical Therapy (28332)	
Hospitality and Tourism	<u>Sequence Option 1:</u> Culinary Arts & Sciences I (28522) and Culinary Arts and Sciences II (28523)		
Human Services	<u>Sequence Option 1:</u> Early Childhood Education I (28235) and Early Childhood Education II (28236) DE	<u>Sequence Option 2:</u> Cosmetology I (28528) and Cosmetology II (28529) **	
IV. Education and Government			
Government and Public Administration	<u>Sequence Option 1:</u> Air Force Junior ROTC I & II (28735)	<u>Sequence Option 2:</u> Air Force Junior ROTC III and IV (28736) DE	
Law, Public Safety, Corrections and Security	<u>Sequence Option 1:</u> Forensic Technology with application in Biotechnology (28325) and Biotechnology Techniques and Applications (28467)		

S – Course provides science credit.

DE – Course is also available for qualified students to earn dual-enrolled credit. Please see course description or more information.

**Additional levels of some sequences are available.

- All courses fulfill the Career and Technical/Fine Arts requirement for high school graduation.

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- Students may earn a selected verified credit upon completion of a CTE sequence and successfully passing a state approved industry certification for that sequence.
- Each CTE course provides an opportunity for industry certification for students entering high school in 2013-2014 and beyond to fulfill the career and technical certification required for the Standard Diploma graduation requirement.

APS CTE Industry Certifications

APS students can earn the following industry certifications through the CTE program:

- WISE Financial Literacy
- MOS Microsoft Office Word 2010
- Workplace Readiness Skills for Commonwealth
- ASE Maintenance & Light Repair
- PLTW Intro to Engineering Design
- PLTW Principals of Engineering Design
- MOS Microsoft Office Word 2013
- NOCTI Electrical Occupations
- ACA Photoshop CS6
- Brainbench Networking Concepts
- Brainbench Network Authentication
- Brainbench Internet Security
- Brainbench Network Security
- Brainbench JAVA 1
- MOS Microsoft Office Powerpoint 2010
- ETS ParaPro
- MOS Microsoft Office Excel 2013
- TCP/IP Administration
- ACA Adobe Dreamweaver CS5
- NOCTI ASK Entrepreneurship Management
- NOCTI ASK Fundamental Business Concepts
- MTA Web Development Fundamentals (C#)
- Intuit Quickbooks Certified User 2015
- NOCTI Television Production

DC Area Job Openings

High School Diploma or GED

Table 3: Local Job Openings for HS/GED by Occupation

Occupation	Job Openings	Aligns with APS Offerings	Area to Explore
<i>Retail Salespersons</i>	9,098	Intro. to Business and Marketing	
<i>First-Line Supervisors of Retail Sales Workers</i>	6,861	Intro. to Business and Marketing	
<i>First-Line Supervisors of Food Preparation and Serving Workers</i>	5,664	Culinary Arts and Science	
<i>Customer Service Representatives</i>	3,790	Intro. to Business and Marketing	

Appendix C7

Occupation	Job Openings	Aligns with APS Offerings	Area to Explore
<i>First-Line Supervisors of Office and Administrative Support Workers</i>	3,655	Technology Computer Applications	
<i>Executive Secretaries and Executive Administrative Assistants</i>	3,082	Technology Computer Applications	
<i>Cashiers</i>	2,294	Entrepreneurship	
<i>Maintenance and Repair Workers, General</i>	2,178	Automotive Technician/ Construction Technology	
<i>Combined Food Preparation and Serving Workers, Including Fast Food</i>	2,155	Culinary Arts and Science	
<i>Stock Clerks, Sales Floor</i>	2,062	Entrepreneurship	
<i>Tellers</i>	1,791	Business and Marketing	
<i>Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products</i>	1,636	Business and Marketing	
<i>Managers, All Other</i>	1,636	Business and Marketing	
<i>Advertising Sales Agents</i>	1,626	Business and Marketing	
<i>Maids and Housekeeping Cleaners</i>	1,546		No
<i>Security Guards</i>	1,466		No
<i>Sales Representatives, Services, All Other</i>	1,440	Entrepreneurship	
<i>Waiters and Waitresses</i>	1,426	Culinary Arts and Science	
<i>Social and Human Service Assistants</i>	1,425		No
<i>First-Line Supervisors of Mechanics, Installers, and Repairers</i>	1,387	Automotive Technology	
<i>Secretaries and Administrative Assistants, Except Legal, Medical, and Executive</i>	1,286	Technology Computer Applications	
<i>Light Truck or Delivery Services Drivers</i>	1,273		No
<i>Merchandise Displayers and Window Trimmers</i>	1,233	Business and Marketing	
<i>Insurance Sales Agents</i>	1,200	Business and Marketing	
<i>Cooks, Restaurant</i>	1,192	Culinary Arts and Science	
<i>Medical Secretaries</i>	1,170	Health Sciences	
<i>Office Clerks, General</i>	1,169	Technology Computer Applications	
<i>Food Preparation Workers</i>	1,161	Culinary Arts and Science	
<i>Demonstrators and Product Promoters</i>	1,155	Entrepreneurship	
<i>Business Operations Specialists, All Other</i>	1,130	Business and Marketing	
<i>Hotel, Motel, and Resort Desk Clerks</i>	1,114	Technology Computers applications	

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Occupation	Job Openings	Aligns with APS Offerings	Area to Explore
<i>First-Line Supervisors of Non-Retail Sales Workers</i>	1,103	Business and Marketing	
<i>Computer User Support Specialists</i>	1,081	Technology Computers applications	
<i>Stock Clerks- Stockroom, Warehouse, or Storage Yard</i>	1,063		No
<i>First-Line Supervisors of Transportation and Material-Moving Machine and Vehicle Operators</i>	1,008	Automotive Technology	
<i>Bookkeeping, Accounting, and Auditing Clerks</i>	964	Business and Marketing	
<i>Food Service Managers</i>	930	Culinary Arts and Science	
<i>Pharmacy Technicians</i>	900	Pharmacy Tech	
<i>Automotive Specialty Technicians</i>	856	Automotive Technology	
<i>Receptionists and Information Clerks</i>	798	Technology Computer Applications	
<i>Laborers and Freight, Stock, and Material Movers, Hand</i>	793		No
<i>Property, Real Estate, and Community Association Managers</i>	789	Business and Marketing	
<i>First-Line Supervisors of Construction Trades and Extraction Workers</i>	777	Construction Technology	
<i>Dishwashers</i>	723		No
<i>Medical Assistants</i>	686		
<i>Janitors and Cleaners, Except Maids and Housekeeping Cleaners</i>	663		No
<i>Intelligence Analysts</i>	653		No
<i>Nursing Assistants</i>	623		Yes
<i>Driver/Sales Workers</i>	622		No
<i>Fitness Trainers and Aerobics Instructors</i>	570	PT/Sports Med	
<i>Real Estate Sales Agents</i>	530	Business and Marketing	
<i>Sales Agents, Financial Services</i>	529	Business and Marketing	
<i>Taxi Drivers and Chauffeurs</i>	517		No
<i>Hosts and Hostesses, Restaurant, Lounge, and Coffee Shop</i>	500	Culinary Arts and Science	
<i>Dining Room and Cafeteria Attendants and Bartender Helpers</i>	487	Culinary Arts and Science	
<i>Purchasing Agents, Except Wholesale, Retail, and Farm Products</i>	472	Business and Marketing	
<i>Human Resources Assistants, Except Payroll and Timekeeping</i>	467	Business and Marketing	

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Occupation	Job Openings	Aligns with APS Offerings	Area to Explore
<i>Landscaping and Groundskeeping Workers</i>	410		No
<i>Bus and Truck Mechanics and Diesel Engine Specialists</i>	402	Automotive Technology	
<i>Network and Computer Systems Administrators</i>	401	Intro to Information Technology	
<i>First-Line Supervisors of Housekeeping and Janitorial Workers</i>	397		No
<i>Lodging Managers</i>	366	Entrepreneurship	
<i>First-Line Supervisors of Personal Service Workers</i>	346		No
<i>Chefs and Head Cooks</i>	343	Culinary Arts and Science	
<i>First-Line Supervisors of Protective Service Workers, All Other</i>	331		No
<i>Preschool Teachers, Except Special Education</i>	320	Teachers for Tomorrow	
<i>Medical and Clinical Laboratory Technicians</i>	312		
<i>Bartenders</i>	312		No
<i>Phlebotomists</i>	290		
<i>Heavy and Tractor-Trailer Truck Drivers</i>	288		No
<i>Home Health Aides</i>	281		Yes
<i>Electricians</i>	272	Electricity	
<i>Registered Nurses</i>	269		Yes
<i>Personal Care Aides</i>	240		Yes
<i>Production, Planning, and Expediting Clerks</i>	237	Business and Marketing	
<i>First-Line Supervisors of Production and Operating Workers</i>	235	Technology Education	
<i>Information Security Analysts</i>	235		No
<i>Shipping, Receiving, and Traffic Clerks</i>	233	Business and Marketing	
<i>Bill and Account Collectors</i>	232	Business and Marketing	
<i>Medical Records and Health Information Technicians</i>	232	Health Science	
<i>Automotive Master Mechanics</i>	231	Automotive Technology	
<i>Inspectors, Testers, Sorters, Samplers, and Weighers</i>	222		No
<i>Coaches and Scouts</i>	217		No
<i>Loan Interviewers and Clerks</i>	209	Business and Marketing	
<i>Construction Laborers</i>	204	Construction Technology	

Occupation	Job Openings	Aligns with APS Offerings	Area to Explore
<i>Interpreters and Translators</i>	197		Yes
<i>Telecommunications Equipment Installers and Repairers, Except Line Installers</i>	192	Electricity	
<i>Cooks, Institution and Cafeteria</i>	188	Culinary Arts and Science	
<i>Telemarketers</i>	188		No
<i>Pest Control Workers</i>	185		No
<i>Financial Managers, Branch or Department</i>	184	Business and Marketing	
<i>Software Developers, Applications</i>	184	Computer Science	
<i>Patient Representatives</i>	181		No
<i>Plumbers</i>	177		No
<i>Automotive Body and Related Repairers</i>	175	Automotive Technology	
<i>Criminal Investigators and Special Agents</i>	169	Forensics Technology	
<i>Heating and Air Conditioning Mechanics and Installers</i>	167		No
<i>Food Servers, Nonrestaurant</i>	166	Culinary Arts and Science	
<i>First-Line Supervisors of Landscaping, Lawn Service, and Groundskeeping Workers</i>	166		No
<i>Recreation Workers</i>	163		No
<i>Services Offered</i>	607		No
<i>Others</i>	14,189		
Total	113,950		

Table 4: Local Job Openings for HS/GED by Hard and Soft Skills

Required Skill	Job Openings	Change from Prior Year	Aligns with APS Offerings	Area to Explore
<i>Oral and written communication skills</i>	26,623	3.24%	All CTE	
<i>Customer service oriented</i>	12,626	-1.74%	All CTE	
<i>Integrity</i>	11,576	23.02%	All CTE	
<i>Team-oriented, teamwork</i>	10,011	35.06%	All CTE	
<i>Detail oriented</i>	9,813	4.67%	All CTE	

<i>Required Skill</i>	<i>Job Openings</i>	<i>Change from Prior Year</i>	<i>Aligns with APS Offerings</i>	<i>Area to Explore</i>
<i>Microsoft Office</i>	9,078	18.08%	Technology Computer Applications	
<i>Marketing</i>	9,002	67.32%	Intro to Business and Marketing	
<i>Work independently</i>	6,825	21.33%	All CTE	
<i>Sales experience / ability</i>	6,727	10.95%	Entrepreneurship	
<i>Organizational skills</i>	5,678	13.15%	All CTE	
<i>Coaching</i>	5,635	5.52%		No
<i>Self-starting / Self-motivated</i>	5,616	-10.49%	All CTE	
<i>Creativity</i>	5,309	14.32%	All CTE	
<i>Problem solving</i>	5,023	12.40%	All CTE	
<i>Time management</i>	4,917	2.29%	All CTE	
<i>Retail sales</i>	4,885	10.37%	Entrepreneurship	
<i>Dependability</i>	4,749	-1.88%	All CTE	
<i>Management skills</i>	4,332	91.09%	All CTE	
<i>Basic computer skills</i>	4,194	-10.19%	Technology Computer Applications	
<i>Strong leadership skills</i>	3,994	20.59%	AFJROTC	
<i>Work ethics</i>	3,643	14.38%	All CTE	
<i>Guest service experience</i>	3,548	36.83%	Culinary Arts and Science	
<i>Data entry</i>	3,427	26.36%	Technology Computer Applications	
<i>Management experience</i>	3,380	105.85%	Intro to Business Management	
<i>Administrative support</i>	3,090	6.66%	Technology Computer Applications	
<i>Microsoft PowerPoint</i>	3,003	8.37%	Technology Computer Applications	
<i>Troubleshooting</i>	2,660	8.88%	All CTE	
<i>Bilingual</i>	2,651	-14.98%		No
<i>Quality Assurance</i>	2,635	46.15%	All CTE	
<i>Food preparation</i>	2,631	2.61%	Culinary Arts and Sciences	
<i>Entrepreneurial</i>	2,580	16.58%	Entrepreneurship	
<i>Strong interpersonal skills</i>	2,580	25.12%	All CTE	
<i>Cash registers</i>	2,450	-17.23%		No
<i>Microsoft Word</i>	2,446	20.97%	Technology Computer Applications	

Required Skill	Job Openings	Change from Prior Year	Aligns with APS Offerings	Area to Explore
<i>Customer relations</i>	2,212	49.66%	Intro to Business and Marketing	
<i>Prospecting</i>	2,193	65.26%		No
<i>Word processing</i>	2,020	0.80%	Technology Computer Applications	
<i>Ability to learn</i>	1,920	16.72%	All CTE	
<i>Inventory control</i>	1,882	98.11%	Intro to Business and Marketing	
<i>Highly motivated</i>	1,843	-6.30%	All CTE	
<i>Business development</i>	1,716	5.80%	Intro to Business and Marketing	
<i>Computer based training</i>	1,617	8.82%	Computer Science	
<i>Restaurant management</i>	1,589	33.64%	Culinary Arts and Science	
<i>Preventative maintenance inspections</i>	1,552	21.53%	Automotive Technology	
<i>Risk Management</i>	1,517	12.70%	Intro to Business and Marketing	
<i>Quality control</i>	1,509	-17.27%	All CTE	
<i>Preventive maintenance</i>	1,483	12.43%	Automotive Technology	
<i>Advertising Sales</i>	1,475	680.42%	Intro to Business and Marketing	
<i>Property management</i>	1,460	7.27%		Yes
<i>Adaptability</i>	1,411	15.28%	All CTE	
<i>Bilingual Spanish</i>	1,319	0.15%		No
<i>Negotiation skills</i>	1,217	35.37%	Family and Consumer Science	
<i>Analytical skills</i>	1,214	23.25%	All CTE	
<i>Inventory Management</i>	1,206	28.30%	Intro to Business and Marketing	
<i>Goal oriented</i>	1,187	3.40%	All CTE	
<i>Sales Management</i>	1,187	59.54%	Intro to Business and Marketing	
<i>Carpentry</i>	1,178	20.20%	Construction Technology	
<i>Technical support</i>	1,149	17.97%	Intro to Information Technology	
<i>Pharmacy Benefit Management</i>	1,119	899.11%	Intro to Health and Medical	

<i>Required Skill</i>	<i>Job Openings</i>	<i>Change from Prior Year</i>	<i>Aligns with APS Offerings</i>	<i>Area to Explore</i>
<i>Ability to travel</i>	1,079	55.25%		No
<i>Sales support</i>	1,064	119.38%	Intro to Business and Marketing	
<i>Record keeping</i>	1,041	7.10%	All CTE	
<i>Ability to take initiative</i>	1,034	41.06%	All CTE	
<i>Resume writing</i>	1,021	-9.96%	All CTE	
<i>Facilities management</i>	1,008	8.50%	Construction Technology	
<i>Cash control</i>	1,003	76.90%	Family and Consumer Science	
<i>Dusting</i>	947	41.77%		No
<i>Customer relationship management</i>	920	28.13%	Intro to Business and Marketing	
<i>Sales skills</i>	910	62.50%	Intro to Business and Marketing	
<i>Program management</i>	904	12.58%	Intro to Business and Marketing	
<i>Food handling</i>	899	95.01%	Culinary Arts and Science	
<i>Accounts payable</i>	891	26.20%	Intro to Business and Marketing	
<i>Artistic</i>	884	-28.36%	Technology Education	
<i>Microsoft Excel</i>	881	23.04%	Technology Computer Applications	
<i>Project Management</i>	866	16.87%	All CTE	
<i>Continuous learning</i>	864	74.55%	All CTE	
<i>Public Relations</i>	848	0.83%	All CTE	
<i>Inside sales</i>	813	35.50%	Intro to Business and Marketing	
<i>Equipment Maintenance</i>	802	49.63%	T&I and Tech Ed	
<i>Retail management</i>	794	55.99%	Intro to Business and Marketing	
<i>Personnel management</i>	791	-37.12%	All CTE	
<i>Highly organized</i>	778	37.46%	All CTE	
<i>Cash handling</i>	767	-75.40%		Yes
<i>Cold calling</i>	742	2.49%	Intro to Business and Management	
<i>Pediatrics</i>	735	-15.90%	Intro to Medical Science	
<i>Work order</i>	730	39.85%		No

Required Skill	Job Openings	Change from Prior Year	Aligns with APS Offerings	Area to Explore
<i>Telemarketing / Telesales</i>	699	33.40%		No
<i>Customer account management</i>	696	-30.19%	Intro to Business and Marketing	
<i>Electrical systems</i>	689	19.00%	T&I and Tech Ed	
<i>Business operations</i>	687	20.32%	Intro to Business and Management	
<i>Decision making skills</i>	666	94.17%	All CTE	
<i>Internal Controls</i>	659	14.61%		No
<i>Microsoft SharePoint</i>	658	41.81%		Yes
<i>Translation services</i>	658	722.50%		No
<i>Time and attendance</i>	656	0.61%	All CTE	
<i>Administrative experience</i>	652	103.75%		Yes
<i>Cash management</i>	651	33.13%	Economics and Personal Finance	
<i>Ability to multitask</i>	644	29.58%	All CTE	
<i>Microsoft Outlook</i>	631	25.70%	Intro to Computer Applications	
<i>Service Desk</i>	626	1.13%		Yes

Table 5: Local Job Openings for HS/GED by Certification

Certification	Job Openings	Change from Prior Year	Aligns with APS Offerings	Area to Explore
<i>Driver's License</i>	14,130	42.84%		No
<i>Food safety programs</i>	3,039	18.43%	Culinary Arts and FACS	
<i>Commercial Driver's License</i>	1,850	25.34%		Yes
<i>Occupational Safety & Health Administration Certification</i>	1,787	7.26%	T&I	
<i>Secret Clearance</i>	1,737	642.31%		No
<i>Certification in Cardiopulmonary Resuscitation</i>	1,678	30.28%	Health and Medical Science	
<i>Top Secret Sensitive Compartmented Information</i>	1,532	23.45%		No
<i>HAZMAT</i>	1,530	14.26%	T&I	
<i>First Aid certification</i>	1,487	42.71%	Health and Medical Science	

Certification	Job Openings	Change from Prior Year	Aligns with APS Offerings	Area to Explore
<i>Basic Life Support</i>	1,119	51.22%	EMT	
<i>Top Secret Clearance</i>	1,040	-12.16%		No
<i>Certified Registered Nurse</i>	1,024	22.49%		Yes
<i>Automotive Service Excellence</i>	960	3.78%	Automotive Technology	
<i>Certified in Nursing Administration</i>	828	-1.19%		Yes
<i>Pharmacy Technician</i>	789	53.50%	Pharmacy Tech	
<i>Automated External Defibrillator</i>	784	30.45%	EMT Health and Medical Science	
<i>Continuing Education</i>	750	43.95%	All CTE	
<i>Health Insurance Portability and Accountability Act - HIPPA</i>	692	202.18%	Intro to Medical Science	
<i>Certified Nursing Assistant</i>	629	24.80%		Yes
<i>State insurance license</i>	561	-14.35%		No
<i>DOT Medical card</i>	535	64.11%		No
<i>Certified Practical Nurse, Long-term care</i>	470	88.00%		Yes
<i>Six Sigma Green Belt</i>	461	32.09%		No
<i>EPA certification</i>	454	4.13%		Yes
<i>Class B Commercial Driver's License</i>	449	41.64%		Yes
<i>Nationwide Mortgage Licensing System</i>	439	4.03%		No
<i>Early Childhood Education</i>	315	-11.52%	Early Childhood-FACS	
<i>Histotechnician / Phlebotomy Certificate</i>	298	-1.32%		No
<i>Phlebotomist</i>	287	51.05%		Yes
<i>Emergency Medical Technician</i>	287	15.26%	EMT	
<i>Material Handling Equipment</i>	265	21.00%		Yes
<i>Esthetician and Cosmetology License</i>	264	388.89%	Cosmetology	
<i>HVAC Certification</i>	250	0%		Yes
<i>Child Development Associate</i>	242	-0.41%	Early Childhood	
<i>Certified Personal Trainer</i>	222	136.17%	PT/Sports Medicine	
<i>Single Scope Background Investigation</i>	220	-8.71%		No
<i>Certification in Ethics</i>	219	1.39%		Yes
<i>FINRA / NASD Series 6</i>	206	-37.76%		No
<i>DoD 8570 Certification</i>	198	178.87%		No
<i>Accredited Purchasing Practitioner</i>	195	-23.23%		No
<i>Licensed Practical Nurse</i>	191	72.07%		Yes
<i>American Midwifery Certification Board</i>	162	5300.00%		No

Certification	Job Openings	Change from Prior Year	Aligns with APS Offerings	Area to Explore
<i>ICD-10 / ICD-9</i>	158	177.19%		No
<i>Group Exercise Instructor</i>	157	145.31%		No
<i>General contractor</i>	157	86.90%	Construction Technology	
<i>Certified Medical Assistant</i>	154	63.83%		Yes
<i>National Electrical Code</i>	153	-1.92%	Electricity	
<i>Patient Care Technician</i>	149	-17.22%		no
<i>Forklift certification</i>	145	-58.45%		No
<i>Automobile Technician: Engine Repair</i>	136	119.35%	Automotive Technology	
<i>American College of Sports Medicine</i>	133	75.00%	PT/Sports Medicine	
<i>Real estate license</i>	132	88.57%		Yes
<i>Better Business Bureau</i>	128	-9.22%	Intro to Business and Marketing	
<i>Information Assurance Technicians</i>	127	47.67%		No
<i>Microsoft Certified Systems Administrator</i>	118	247.06%	Intro to Computer Applications	
<i>Tanker and Hazmat Endorsement</i>	112	47.37%		No
<i>CI Poly</i>	111	344.00%		No
<i>National Registry of Food Safety Professionals</i>	108	-45.45%	FACS	
<i>Project Management Professional</i>	105	29.63%		Yes
<i>Cisco Certified Network Associate</i>	104	67.74%	Intro to Computer Applications	
<i>First Responder</i>	103	51.47%	EMT	
<i>Telecommunications</i>	103	22.62%	Electricity	
<i>Home Health Aide</i>	102	-4.67%	Intro to Medical Science	
<i>Pharmacy Technician Certification Board</i>	97	19.75%	Pharmacy Tech	
<i>Microsoft Technology Associate</i>	96	405.26%	Intro to Computer Applications	
<i>Advanced Cardiac Life Support</i>	95	-27.48%	Intro to Medical Science	
<i>Zumba</i>	86	160.61%		No
<i>Law Enforcement Officer</i>	86	1.18%		Yes
<i>Public trust security clearance</i>	85	39.34%		No
<i>Certified in Long Term Care</i>	82	6.49%		Yes
<i>Certified Information Systems Security Professional</i>	82	49.09%		Yes

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Certification	Job Openings	Change from Prior Year	Aligns with APS Offerings	Area to Explore
<i>Vascular Access - Board Certified</i>	81	-22.12%		No
<i>American Registry of Radiologic Technologists</i>	81	80.00%		Yes
<i>Qualified Environmental Professional</i>	80	-23.08%		Yes
<i>Microsoft Certified Systems Engineer</i>	77	35.09%	Intro to Computer Applications	
<i>Certified Coding Specialist</i>	76	52.00%		Yes
<i>Microsoft Certified Technology Specialist</i>	72	14.29%	Intro to Computer Applications	
<i>Basic Cardiac Life Support</i>	70	-54.55%	Health and Medical Science	
<i>Medium/Heavy Truck Aftermarket Parts Specialist</i>	69	165.38%		No
<i>Emergency Medical System</i>	68	11.48%		Yes
<i>Professional Selling Skills</i>	67	67.50%		No
<i>Financial Industry Regulatory Authority</i>	67	-24.72%		No
<i>Systems Security Certified Practitioner</i>	64	14.29%		Yes
<i>Certified Pharmacy Technician</i>	64	82.86%	Pharmacy Tech	
<i>NISPOM</i>	64	25.49%		No
<i>Teaching license</i>	63	125.00%		No
<i>CompTIA Security+</i>	60	9.09%	Cyber security	
<i>FS Poly</i>	60	650.00%		No
<i>CompTIA A+</i>	59	18.00%	Intro to Computer Applications	
<i>GIAC Security Essentials Certification</i>	56	3.70%		Yes
<i>I-CAR Certified</i>	55	175.00%		Yes
<i>Board of Nephrology Examiners for Nursing and Technology</i>	54	74.19%		No
<i>Class A Commercial Drivers License</i>	54	-34.94%		No
<i>A+ certification</i>	53	562.50%		Yes
<i>National Academy of Sports Medicine clinical certification</i>	52	8.33%		Yes
<i>Department of Health and Human Services</i>	52	-3.70%		No
<i>Technical Supervisor</i>	51	750.00%		No
<i>Nephrologist</i>	51	50.00%		No
<i>Registered Medical Assistant</i>	50	108.33%		Yes
<i>American National Standards</i>	49	-37.97%		No

Associate's Degree

Table 6: Local Job Openings for Associate's Degree by Occupation

Occupation	Job Openings	Aligns with APS Offerings	Area to Explore
<i>Heavy and Tractor-Trailer Truck Drivers</i>	8,422		No
<i>Computer User Support Specialists</i>	4,861		Yes
<i>Registered Nurses</i>	4,411		Yes
<i>Web Developers</i>	4,309		Yes
<i>Retail Salespersons</i>	934		No
<i>Hairdressers, Hairstylists, and Cosmetologists</i>	797	Cosmetology	
<i>Licensed Practical and Licensed Vocational Nurses</i>	757		No
<i>Executive Secretaries and Executive Administrative Assistants</i>	743		Yes
<i>Network and Computer Systems Administrators</i>	723	Intro to Information Technology	
<i>Critical Care Nurses</i>	592		No
<i>Maintenance and Repair Workers, General</i>	569		Yes
<i>First-Line Supervisors of Office and Administrative Support Workers</i>	569		No
<i>Medical Records and Health Information Technicians</i>	560		Yes
<i>Medical Assistants</i>	551		Yes
<i>First-Line Supervisors of Retail Sales Workers</i>	451		No
<i>First-Line Supervisors of Mechanics, Installers, and Repairers</i>	441		No
<i>First-Line Supervisors of Production and Operating Workers</i>	422		No
<i>Nursing Assistants</i>	418		Yes
<i>Radiologic Technologists</i>	408		Yes
<i>Information Security Analysts</i>	374		Yes
<i>First-Line Supervisors of Food Preparation and Serving Workers</i>	371	Culinary Arts and Science	
<i>Customer Service Representatives</i>	364		No
<i>Preschool Teachers, Except Special Education</i>	353	Teachers for Tomorrow	
<i>Paralegals and Legal Assistants</i>	347		Yes

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Occupation	Job Openings	Aligns with APS Offerings	Area to Explore
<i>Physical Therapist Assistants</i>	337	PT/Sports Medicine	
<i>Dental Assistants</i>	305		No
<i>Occupational Therapy Assistants</i>	302	PT/Sports Medicine	Ye
<i>Social and Human Service Assistants</i>	285		No
<i>Electronics Engineering Technicians</i>	281		Yes
<i>Teacher Assistants</i>	262	Teachers for Tomorrow	
<i>Tellers</i>	246		No
<i>Bookkeeping, Accounting, and Auditing Clerks</i>	246	Intro to Business and Marketing	
<i>Heating and Air Conditioning Mechanics and Installers</i>	245		Yes
<i>Management Analysts</i>	244		No
<i>Medical Secretaries</i>	231		Yes
<i>Managers, All Other</i>	228		No
<i>Office Clerks, General</i>	227		No
<i>Secretaries and Administrative Assistants, Except Legal, Medical, and Executive</i>	204	Intro to Computer Application	
<i>Computer Systems Analysts</i>	199	Computer Science	
<i>Business Operations Specialists, All Other</i>	196	Intro to Business and Marketing	
<i>Software Developers, Applications</i>	190	Computer Science	
<i>Information Technology Project Managers</i>	187	Intro to Information Technology	
<i>Security Guards</i>	169		No
<i>Diagnostic Medical Sonographers</i>	169	Intro to Medical Science	
<i>Medical and Clinical Laboratory Technicians</i>	163	Intro to Medical Science	
<i>Lawyers</i>	163		Yes
<i>Accountants</i>	152		Yes
<i>Cashiers</i>	144		No
<i>Audio and Video Equipment Technicians</i>	143	TV Production	
<i>First-Line Supervisors of Transportation and Material-Moving Machine and Vehicle Operators</i>	136		No
<i>Computer Systems Engineers/Architects</i>	131	Computer Science	
<i>Training and Development Specialists</i>	125		Yes

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Occupation	Job Openings	Aligns with APS Offerings	Area to Explore
<i>Telecommunications Equipment Installers and Repairers, Except Line Installers</i>	122	Electricity	
<i>Surgical Technologists</i>	121		Yes
<i>Auditors</i>	120		Yes
<i>Respiratory Therapists</i>	119		Yes
<i>Human Resources Assistants, Except Payroll and Timekeeping</i>	116	Intro to Business and Marketing	
<i>Chief Executives</i>	113	Culinary Arts and Science	
<i>Cardiovascular Technologists and Technicians</i>	112		Yes
<i>Environmental Science and Protection Technicians, Including Health</i>	111		Yes
<i>Food Service Managers</i>	107	Culinary Arts and Science	
<i>Broadcast Technicians</i>	106	TV Production	
<i>General and Operations Managers</i>	103		No
<i>Public Relations Specialists</i>	100		Yes
<i>Software Quality Assurance Engineers and Testers</i>	100	Computer Science	
<i>Veterinary Technologists and Technicians</i>	97	Vet Tech/Small Animals	
<i>Janitors and Cleaners, Except Maids and Housekeeping Cleaners</i>	97		No
<i>Speech-Language Pathologists</i>	97		Yes
<i>Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products</i>	96		No
<i>Computer and Information Systems Managers</i>	96	Intro to Information Technology	
<i>Massage Therapists</i>	91	PT/Sports Medicine	
<i>Civil Engineering Technicians</i>	91	PLTW/Tech Ed	
<i>Financial Managers, Branch or Department</i>	90		Yes
<i>Medical Equipment Repairers</i>	90		Yes
<i>Automotive Specialty Technicians</i>	86	Automotive Tech	
<i>Human Resources Managers</i>	81		Yes
<i>First-Line Supervisors of Protective Service Workers, All Other</i>	79		No
<i>Database Administrators</i>	78	Intro to Computer Applications	

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Occupation	Job Openings	Aligns with APS Offerings	Area to Explore
<i>First-Line Supervisors of Non-Retail Sales Workers</i>	77		No
<i>Pharmacy Technicians</i>	76	Pharmacy Technicians	
<i>Medical and Health Services Managers</i>	76	Intro to Medical Science	
<i>Construction and Building Inspectors</i>	74	Construction Technology	
<i>Operations Research Analysts</i>	74		Yes
<i>Home Health Aides</i>	71		Yes
<i>Human Resources Specialists</i>	70		No
<i>Emergency Medical Technicians and Paramedics</i>	70	EMT	
<i>Mechanical Engineers</i>	67	PLTW/Tech Ed	
<i>Architectural Drafters</i>	67	Tech Ed	
<i>Aircraft Mechanics and Service Technicians</i>	64	Auto Tech/Tech Ed	
<i>Taxi Drivers and Chauffeurs</i>	63		No
<i>First-Line Supervisors of Construction Trades and Extraction Workers</i>	63		Yes
<i>Veterinary Assistants and Laboratory Animal Caretakers</i>	63	Vet Tech/Small Animals	
<i>Market Research Analysts and Marketing Specialists</i>	62	Intro to Business and Marketing	
<i>Cooks, Restaurant</i>	61	Culinary Arts and Science/FACS	
<i>Property, Real Estate, and Community Association Managers</i>	59		Yes
<i>Computer Network Support Specialists</i>	58	Intro to Information Technology	
<i>Civil Engineers</i>	56	PLTWE/Tech Ed	
<i>Private Detectives and Investigators</i>	56		No
<i>Construction Managers</i>	55	Construction Technology	
<i>Coaches and Scouts</i>	54		No
<i>Services Offered</i>	287		No
<i>Others</i>	4,696		N?A
<i>Total</i>	47,695		

Table 7: Local Job Openings for Associate's Degree by Hard and Soft Skills

Required Skill	Job Openings	Change from Prior Year	Aligns with APS Offerings	Area to Explore
<i>Oral and written communication skills</i>	8,812	11.01%	All CTE	
<i>Microsoft Office</i>	4,177	16.81%	Intro to Computer Applications	
<i>Detail oriented</i>	3,744	14.25%	All CTE	
<i>Troubleshooting</i>	3,675	4.76%	All CTE	
<i>Customer service oriented</i>	3,438	29.49%	All CTE	
<i>Problem solving</i>	3,275	15.15%	All CTE	
<i>Integrity</i>	3,024	6.59%	All CTE	
<i>Work independently</i>	2,538	27.41%	All CTE	
<i>Team-oriented, teamwork</i>	2,529	17.35%	All CTE	
<i>Java</i>	2,409	-1.47%	Computer Science	
<i>Creativity</i>	2,253	30.16%	All CTE	
<i>JavaScript</i>	2,127	-7.20%	Computer Science	
<i>Organizational skills</i>	2,022	14.43%	All CTE	
<i>Owner operator</i>	1,909	168.50%		No
<i>Technical support</i>	1,877	9.45%		Yes
<i>Marketing</i>	1,846	117.18%	Intro to Business and Marketing	
<i>Self-starting / Self-motivated</i>	1,681	24.33%	All CTE	
<i>Personnel management</i>	1,525	-45.34%	All CTE	
<i>Quality Assurance</i>	1,511	13.87%	All CTE	
<i>Coaching</i>	1,471	16.47%		Yes
<i>Oracle</i>	1,469	12.91%		Yes
<i>Hypertext markup language</i>	1,439	-14.50%		Yes
<i>Microsoft PowerPoint</i>	1,425	5.01%	Intro to Computer Applications	
<i>Software development</i>	1,372	141.12%	Computer Science	
<i>Cascading Style Sheets</i>	1,368	-11.91%		No
<i>Web services</i>	1,367	6.80%	Design Multimedia Web Design	
<i>Time management</i>	1,350	21.08%	All CTE	
<i>Management skills</i>	1,343	145.97%	All CTE	
<i>Critical care</i>	1,335	206.19%	EMT	
<i>Strong interpersonal skills</i>	1,309	84.11%	All CTE	
<i>Pediatrics</i>	1,295	105.23%		Yes
<i>Strong leadership skills</i>	1,257	38.74%		Yes
<i>Extensible markup language</i>	1,242	5.25%		No
<i>Basic computer skills</i>	1,217	10.34%	Computer Science	

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Required Skill	Job Openings	Change from Prior Year	Aligns with APS Offerings	Area to Explore
<i>Structured query language</i>	1,216	-30.63%		Yes
<i>jQuery</i>	1,178	-1.51%		Yes
<i>Project Management</i>	1,118	-8.88%	All CTE	
<i>Microsoft Word</i>	1,107	23.55%	Intro to Computer Applications	
<i>Microsoft SharePoint</i>	1,100	2.71%	Intro to Computer Applications	
<i>Linux</i>	1,048	-7.42%	Computer Science	
<i>Administrative support</i>	1,021	-3.13%		No
<i>Management experience</i>	1,010	126.97%		Yes
<i>Retail management</i>	994	1970.83%		No
<i>Ability to learn</i>	944	57.33%	All CTE	
<i>Website development / programming</i>	915	93.86%	Design Multimedia, Web Design	
<i>Microsoft .NET Framework</i>	906	17.36%		Yes
<i>Microsoft SQL Server</i>	902	13.17%		Yes
<i>Systems Development Life Cycle</i>	897	11.29%		Yes
<i>Quality control</i>	893	7.98%	All CTE	
<i>UNIX</i>	828	-4.72%	Computer Science	
<i>HTML5</i>	821	-7.23%	Design Multimedia Web Technology	
<i>Microsoft Active Directory</i>	819	4.20%	Intro to Computer Applications	
<i>Spring</i>	792	-13.35%		Yes
<i>Sun Microsystems Java 2 Platform Enterprise Edition</i>	788	-10.76%		Yes
<i>Application development</i>	783	107.14%	Computer Science	
<i>Program management</i>	781	-16.74%		Yes
<i>Preventive maintenance</i>	752	24.30%	Automotive Technology	
<i>Analytical skills</i>	750	-7.75%	All CTE	
<i>Data entry</i>	741	13.48%		No
<i>Word processing</i>	738	-17.45%	Intro to Computer Applications	
<i>Dependability</i>	724	24.83%	All CTE	
<i>Entrepreneurial</i>	686	22.72%	Entrepreneurship	

Table 8: Local Job Openings for Associate's Degree by Certification

Certification	Job Openings	Change from Prior Year	Aligns with APS Offerings	Area to Explore
<i>Commercial Driver's License</i>	7,435	118.74%		Yes
<i>Certified Registered Nurse</i>	5,174	30.72%		Yes
<i>Driver's License</i>	3,263	28.77%		No
<i>Basic Life Support Certification in Cardiopulmonary Resuscitation</i>	2,232	32.23%	EMT	
<i>Secret Clearance</i>	2,140	-1.92%	EMT	
<i>HAZMAT</i>	1,906	811.96%		No
<i>Continuing Education</i>	1,397	28.76%		Yes
<i>Top Secret Sensitive Compartmented Information</i>	1,316	221.76%	All CTE	
<i>Top Secret Clearance</i>	1,247	-5.46%		No
<i>Licensed Practical Nurse</i>	1,211	-30.44%		No
<i>Occupational Safety & Health Administration Certification</i>	1,111	39.75%		Yes
<i>Certified Purchasing Manager</i>	893	26.49%	Construction Classes	
<i>Advanced Cardiac Life Support</i>	846	28.96%		Yes
<i>Esthetician and Cosmetology License</i>	778	9.42%	EMT	
<i>DOT Medical card</i>	649	268.75%	Cosmetology	
<i>First Aid certification</i>	630	153.01%		No
<i>Certified in Nursing Administration</i>	589	-8.82%	EMT	
<i>American Registry of Radiologic Technologists</i>	465	-21.32%		Yes
<i>Tanker and Hazmat Endorsement</i>	404	10.38%		Yes
<i>Certified in Long Term Care</i>	396	123.73%		No
<i>ICD-10 / ICD-9</i>	362	33.58%		Yes
<i>Certified Occupational Therapy Assistant</i>	361	195.90%		No
<i>Certified Nursing Assistant</i>	301	63.59%	PT/Sports Medicine	
<i>Class A Commercial Drivers License</i>	293	11.41%		Yes
<i>Dental Assistant</i>	287	91.33%		No
<i>DoD 8570 Certification</i>	285	60.11%		No
<i>Certified Coding Specialist</i>	277	25.34%		No
<i>Physical Therapy Assistant Certification</i>	273	133.33%	Computer Science	
<i>Pediatric Advanced Life Support</i>	250	52.44%	PT/Sports Medicine	
<i>Food safety programs</i>	245	51.23%	EMT	
<i>Early Childhood Education</i>	244	25.77%	Culinary Arts and Science/FACS	
	243	-48.41%	Early Childhood	

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Certification	Job Openings	Change from Prior Year	Aligns with APS Offerings	Area to Explore
<i>Health Insurance Portability and Accountability Act - HIPPA</i>	235	-5.24%		No
<i>Certified Practical Nurse, Long-term care</i>	235	-25.63%		Yes
<i>Neonatal Resuscitation Program</i>	232	90.16%		No
<i>Certified Medical Assistant</i>	230	76.92%	Intro to Medical Science	
<i>Radiography</i>	225	20.32%		Yes
<i>ITIL Foundation certification (v3)</i>	224	98.23%		No
<i>Cisco Certified Network Associate</i>	221	11.62%	Intro to Information Technology	
<i>Single Scope Background Investigation</i>	202	-43.26%		No
<i>Certified Public Accountant</i>	197	-23.05%		Yes
<i>Oracle Database 11g Administrator Certified Professional</i>	188	42.42%	Advanced Topics in IT	
<i>Certification in Ethics</i>	188	18.24%		Yes
<i>Child Development Associate</i>	186	-55.29%		Yes
<i>Radiation Therapy</i>	180	361.54%		Yes
<i>Certified Internal Auditor</i>	173	-28.81%		No
<i>Microsoft Certified Systems Engineer</i>	167	-16.08%		Yes
<i>CompTIA A+</i>	165	15.38%	Advanced Topics in IT	
<i>Automated External Defibrillator</i>	164	8.61%	EMT	
<i>Emergency Medical Technician</i>	161	15.00%	EMT	
<i>EPA certification</i>	157	31.93%		Yes
<i>Registered Health Information Technician</i>	152	42.06%		Yes
<i>Public trust security clearance</i>	150	68.54%		No
<i>CompTIA Security+</i>	150	13.64%	Cyber security	
<i>Patient Care Technician</i>	150	-13.29%		Yes
<i>Registered Health Information Administrator</i>	148	55.79%		Yes
<i>Business Process Management Programming Languages</i>	146	4.29%		Yes
<i>Certified Information Systems Security Professional</i>	140	42.86%		Yes
<i>Microsoft Certified Professional</i>	139	-11.46%	Intro to Computer Applications	
<i>Microsoft Certified Systems Administrator</i>	137	75.64%	Intro to Computer Applications	
<i>Project Management Professional</i>	137	45.74%		No
<i>Licensed Vocational Nurse</i>	136	209.09%		No

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Certification	Job Openings	Change from Prior Year	Aligns with APS Offerings	Area to Explore
<i>American Registry for Diagnostic Medical Sonography</i>	134	-2.19%		No
<i>Information Assurance Technicians</i>	130	-15.58%		No
<i>Registered Respiratory Therapist</i>	126	26.00%		Yes
<i>Basic Cardiac Life Support</i>	126	22.33%		Yes
<i>Automotive Service Excellence</i>	126	-11.27%	Automotive Technology	
<i>Security+ Certification</i>	122	31.18%	Cyber Security	
<i>Registered Veterinary Technician</i>	117	46.25%		Yes
<i>HVAC Certification</i>	114	12.87%		No
<i>Six Sigma Green Belt</i>	109	23.86%		No
<i>Board Certified</i>	100	177.78%		No
<i>Certified Respiratory Therapist</i>	100	-14.53%		No
<i>Microsoft Certified IT Professional</i>	99	5.32%	Intro to Computer Applications	
<i>CI Poly</i>	99	1314.29%		No
<i>Sonography</i>	96	11.63%		No
<i>Registered Medical Assistant</i>	95	102.13%		Yes
<i>Class B Commercial Driver's License</i>	94	0%		No
<i>Department of Health and Human Services</i>	92	31.43%		No
<i>Diagnosis Related Groups</i>	90	21.62%		No
<i>American Health Information Management Association</i>	88	72.55%		Yes
<i>Certificate of Clinical Competence</i>	87	42.62%		No
<i>Systems Security Certified Practitioner</i>	83	76.60%		Yes
<i>Telecommunications</i>	82	-43.06%		Yes
<i>Registered Diagnostic Medical Sonographer</i>	81	-1.22%		No
<i>A+ certification</i>	81	170.00%	Intro to Information Technology	
<i>IAT Level 2</i>	78	136.36%		No
<i>Certification in General Surgery</i>	78	160.00%		Yes
<i>Association of perioperative Registered Nurses</i>	77	250.00%		No
<i>Medical-Surgical Nurse</i>	77	-23.00%		Yes
<i>Special Education</i>	76	35.71%		No
<i>System Administrator</i>	75	-47.55%		Yes
<i>First Responder</i>	73	12.31%	EMT	
<i>American Speech-Language Hearing Association</i>	70	25.00%		Yes

Certification	Job Openings	Change from Prior Year	Aligns with APS Offerings	Area to Explore
<i>CompTIA Network+ Certification</i>	69	1.47%	Intro to Information Technology	
<i>Speech and Language Pathologist</i>	69	46.81%		No
<i>Project Management Institute</i>	67	76.32%		No
<i>Vascular Access - Board Certified</i>	66	-35.29%		No
<i>Qualified Environmental Professional</i>	65	-32.29%		No
<i>Medical Laboratory Technician</i>	64	60.00%		Yes

Bachelor’s Degree

Table 9: Local Job Openings for Bachelor’s Degree by Occupation

Occupation	Job Openings	Aligns with APS Offerings	Area to Explore
<i>Software Developers, Applications</i>	15,996	Computer Science	
<i>Network and Computer Systems Administrators</i>	15,469	Intro to Information Technology	
<i>Computer Systems Analysts</i>	12,336	Computer Science	
<i>Information Security Analysts</i>	12,171	Cyber Security	
<i>Management Analysts</i>	10,693		Yes
<i>Computer Systems Engineers/Architects</i>	10,112	Computer Science	
<i>Information Technology Project Managers</i>	8,310	Intro to Information Technology	
<i>Marketing Managers</i>	8,215	Intro to Business and Marketing	
<i>Registered Nurses</i>	6,067	Intro to Medical Science	
<i>Web Developers</i>	5,880	Design, Multimedia and Web Technologies	Yes
<i>Computer User Support Specialists</i>	5,203	Intro to Computer Applications	Yes
<i>Computer and Information Systems Managers</i>	5,124	Computer Science/ Information Technology	Yes
<i>Sales Managers</i>	4,825		No
<i>Public Relations Specialists</i>	4,733		Yes
<i>Managers, All Other</i>	4,593		No
<i>Accountants</i>	4,556		No
<i>Software Quality Assurance Engineers and Testers</i>	4,253	PLTW/Tech Ed	
<i>Market Research Analysts and Marketing Specialists</i>	3,930	Intro to Business and Marketing	

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Occupation	Job Openings	Aligns with APS Offerings	Area to Explore
<i>Executive Secretaries and Executive Administrative Assistants</i>	3,417	Intro to Computer Applications	
<i>Public Relations and Fundraising Managers</i>	3,380		No
<i>Financial Managers, Branch or Department</i>	3,318		Yes
<i>Database Administrators</i>	3,141	Intro to Computer Applications	
<i>Human Resources Managers</i>	3,120		No
<i>General and Operations Managers</i>	3,107		No
<i>Computer Programmers</i>	3,036	Computer Science	
<i>Sales Representatives, Wholesale and Manufacturing, Technical and Scientific Products</i>	2,783		No
<i>Medical and Health Services Managers</i>	2,746	Intro to Medical Science	
<i>First-Line Supervisors of Office and Administrative Support Workers</i>	2,651		No
<i>Auditors</i>	2,538		No
<i>Business Operations Specialists, All Other</i>	2,459	Intro to Business and Marketing	
<i>Training and Development Specialists</i>	2,364		No
<i>Human Resources Specialists</i>	2,281		No
<i>Sales Agents, Financial Services</i>	2,073		No
<i>Industrial Engineers</i>	2,066	PLTW/Tech Ed	
<i>First-Line Supervisors of Retail Sales Workers</i>	2,060	Intro to Business and Marketing	
<i>Operations Research Analysts</i>	2,047		No
<i>Financial Analysts</i>	2,028		Yes
<i>Intelligence Analysts</i>	1,945		Yes
<i>Software Developers, Systems Software</i>	1,867	Computer Science	
<i>Civil Engineers</i>	1,711	PLTW/Tech Ed	
<i>Sales Representatives, Services, All Other</i>	1,704		Yes
<i>Technical Writers</i>	1,699		Yes
<i>Social and Human Service Assistants</i>	1,591		No
<i>Computer Network Architects</i>	1,317	Intro to Information Technology	
<i>Purchasing Agents, Except Wholesale, Retail, and Farm Products</i>	1,314		Yes
<i>Electrical Engineers</i>	1,290	PLTW/Tech Ed	

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<i>Occupation</i>	<i>Job Openings</i>	<i>Aligns with APS Offerings</i>	<i>Area to Explore</i>
<i>Social and Community Service Managers</i>	1,226		No
<i>Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products</i>	1,189		No
<i>Graphic Designers</i>	1,187	Graphic Communications System	
<i>First-Line Supervisors of Non-Retail Sales Workers</i>	1,176		No
<i>Construction Managers</i>	1,176	Construction Technology	
<i>Medical Scientists, Except Epidemiologists</i>	1,162		Yes
<i>Loan Officers</i>	1,157		No
<i>Sales Engineers</i>	1,045		No
<i>Aerospace Engineers</i>	1,018	PLTW/Tech Ed	
<i>Mechanical Engineers</i>	1,016	PLTW/Tech Ed	
<i>Chief Executives</i>	1,012		No
<i>Logisticians</i>	978		No
<i>Architectural and Engineering Managers</i>	971	PLTW/Tech Ed	
<i>Editors</i>	961		No
<i>Electronics Engineers, Except Computer</i>	917	PLTW/ Tech Ed	
<i>Property, Real Estate, and Community Association Managers</i>	889		Yes
<i>Computer and Information Research Scientists</i>	742	Computer Science	
<i>Environmental Scientists and Specialists, Including Health</i>	740		Yes
<i>Treasurers and Controllers</i>	712		No
<i>Bookkeeping, Accounting, and Auditing Clerks</i>	694		Yes
<i>Preschool Teachers, Except Special Education</i>	679	Teachers for Tomorrow	
<i>Meeting, Convention, and Event Planners</i>	637		Yes
<i>Purchasing Managers</i>	630		No
<i>Security Guards</i>	625		No
<i>Customer Service Representatives</i>	613	Intro to Business and Marketing	
<i>Compensation, Benefits, and Job Analysis Specialists</i>	571		Yes

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Occupation	Job Openings	Aligns with APS Offerings	Area to Explore
<i>Administrative Services Managers</i>	567		No
<i>Insurance Sales Agents</i>	559		No
<i>Reporters and Correspondents</i>	552		Yes
<i>Food Service Managers</i>	549	Culinary Arts and Science	
<i>First-Line Supervisors of Production and Operating Workers</i>	532		No
<i>First-Line Supervisors of Food Preparation and Serving Workers</i>	518	Culinary Arts and Science	
<i>Education Administrators, Postsecondary</i>	499		No
<i>Emergency Management Directors</i>	499		No
<i>Environmental Engineers</i>	493		Yes
<i>Elementary School Teachers, Except Special Education</i>	483	Teachers for Tomorrow	
<i>Clinical Research Coordinators</i>	481		No
<i>Educational, Guidance, School, and Vocational Counselors</i>	478		Yes
<i>Budget Analysts</i>	478		Yes
<i>Secondary School Teachers, Except Special and Career/Technical Education</i>	469	Teachers for Tomorrow	
<i>First-Line Supervisors of Mechanics, Installers, and Repairers</i>	466		No
<i>Personal Financial Advisors</i>	463		Yes
<i>Producers</i>	437	TV Production	
<i>Medical and Clinical Laboratory Technologists</i>	429	Intro the health and Medical Science	
<i>Vocational Education Teachers, Postsecondary</i>	427	Teachers or Tomorrow	
<i>Interpreters and Translators</i>	422		Yes
<i>Secretaries and Administrative Assistants, Except Legal, Medical, and Executive</i>	412		Yes
<i>Pharmacists</i>	409	Pharmacy Tech	
<i>Physical Therapists</i>	398	PT/Sports Medicine	
<i>Paralegals and Legal Assistants</i>	397		Yes
<i>Biological Technicians</i>	397		Yes
<i>Compensation and Benefits Managers</i>	394		No
<i>Cost Estimators</i>	382	All CTE	
<i>Industrial Safety and Health Engineers</i>	374	Tech Ed	
<i>Services Offered</i>	877		No

<i>Occupation</i>	<i>Job Openings</i>	<i>Aligns with APS Offerings</i>	<i>Area to Explore</i>
<i>Others</i>	22,852		
<i>Total</i>	267,935		

Table 10: Local Job Openings for Bachelor's Degree by Hard and Soft Skills

<i>Required Skill</i>	<i>Job Opening</i>	<i>Change from Prior Year</i>	<i>Aligns with APS Offerings</i>	<i>Area to Explore</i>
<i>Oral and written communication skills</i>	92,820	+17.26%	All CTE Classes	
<i>Microsoft Office</i>	44,243	+18.45%	Intro to Computer Applications	
<i>Detail oriented</i>	33,138	+22.12%	All CTE Classes	
<i>Project Management</i>	32,888	+13.67%	All CTE Classes	
<i>Marketing</i>	31,763	+72.17%	Intro to Business and Marketing	
<i>Creativity</i>	31,086	+19.79%	All CTE Classes	
<i>Problem solving</i>	28,498	+16.39%	All CTE Classes	
<i>Microsoft PowerPoint</i>	28,042	+14.36%	Intro to Computer Applications	
<i>Work independently</i>	24,976	+15.57%	All CTE Classes	
<i>Integrity</i>	24,921	+5.93%	All CTE Classes	
<i>Self-starting / Self-motivated</i>	22,574	+16.53%	All CTE Classes	
<i>Software development</i>	21,661	+128.11%	Computer Science	
<i>Troubleshooting</i>	21,236	+13.38%	All CTE Classes	
<i>Management skills</i>	20,092	+132.36%	All CTE Classes	
<i>Oracle</i>	19,863	-2.29%		Yes
<i>Management experience</i>	19,713	+123.38%		Yes
<i>Team-oriented, teamwork</i>	19,313	+0.19%	All CTE Classes	
<i>Java</i>	18,930	+7.95%	Computer Science	
<i>Organizational skills</i>	18,898	+8.04%	All CTE Classes	
<i>Linux</i>	18,550	+12.52%	Computer Science	
<i>Analytical skills</i>	17,663	+19.92%	All CTE Classes	
<i>Structured query language</i>	17,154	-11.15%		Yes
<i>Business development</i>	16,452	+18.11%	Intro to Business and Marketing	
<i>Customer service oriented</i>	15,476	+16.87%	Intro to Business and Marketing	
<i>Strong leadership skills</i>	15,030	+15.36%	JROTC	
<i>Quality Assurance</i>	15,022	+12.80%	All CTE Classes	
<i>Program management</i>	14,736	+5.32%		Yes
<i>Coaching</i>	13,033	+1.88%		Yes
<i>Systems Development Life Cycle</i>	12,989	+11.06%		Yes
<i>Time management</i>	12,595	+19.10%	All CTE Classes	
<i>Business process modeling</i>	12,357	-0.64%	Intro to Business and Marketing	
<i>Cyber security</i>	12,137	+23.27%	Cyber Security	

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<i>Required Skill</i>	<i>Job Opening</i>	<i>Change from Prior Year</i>	<i>Aligns with APS Offerings</i>	<i>Area to Explore</i>
<i>Risk Management</i>	12,123	+31.67%		Yes
<i>UNIX</i>	11,937	+1.56%		Yes
<i>JavaScript</i>	11,685	+20.90%	Computer Science	
<i>Microsoft SharePoint</i>	11,659	+15.58%		Yes
<i>Technical support</i>	10,923	+11.66%		Yes
<i>Strong interpersonal skills</i>	10,553	+14.45%	All CTE Classes	
<i>Negotiation skills</i>	10,400	+9.20%		Yes
<i>Microsoft Word</i>	9,830	+15.80%	Intro to Computer Applications	
<i>Entrepreneurial</i>	9,787	+22.72%	Entrepreneurship	
<i>Business requirements gathering</i>	9,623	+7.27%		No
<i>Information security</i>	9,203	+26.03%	Intro to Information Technology	
<i>Data Analysis</i>	9,076	+11.81%	Intro to Information Technology	
<i>Web services</i>	8,954	+1.13%	Intro to Computer Applications	
<i>Python</i>	8,842	+33.00%	Computer Science	
<i>Microsoft SQL Server</i>	8,823	-0.23%	Intro to Information Technology	
<i>Process Improvement</i>	8,749	+15.90%		No
<i>Financial management</i>	8,637	+0.36%		Yes
<i>Hypertext markup language</i>	8,436	+12.39%		Yes
<i>Change Management</i>	8,265	+8.19%		No
<i>Ability to travel</i>	8,144	+9.48%		No
<i>Application development</i>	8,107	+113.01%	Computer Science	
<i>Systems Integration</i>	8,066	-3.10%		Yes
<i>Sales experience / ability</i>	8,058	+9.81%		No
<i>Customer relationship management</i>	8,001	+25.13%		Yes
<i>Microsoft Excel</i>	7,823	+13.00%	Intro to Computer Applications	
<i>Extensible markup language</i>	7,820	+3.11%		No
<i>Firewall</i>	7,706	+20.94%	Cyber Security	
<i>Relational Database Management System</i>	7,676	+5.12%		Yes
<i>Configuration Management</i>	7,640	+5.82%		Yes
<i>VMware</i>	7,503	+15.15%		Yes
<i>Scrum agile methodology</i>	7,493	+37.56%		No
<i>Strategic planning</i>	7,378	+16.91%		Yes
<i>Information assurance</i>	7,096	+22.01%		No
<i>Budgeting</i>	7,072	+5.90%		Yes
<i>Microsoft Office Visio</i>	7,056	+11.96%		Yes
<i>Data management</i>	6,935	+12.40%	Intro to Computer Applications	
<i>Cascading Style Sheets</i>	6,823	+20.85%		No
<i>Microsoft .NET Framework</i>	6,805	+9.41%		Yes
<i>Highly motivated</i>	6,670	+9.31%	All CTE Classes	
<i>Quality control</i>	6,650	+12.54%	All CTE Classes	

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<i>Required Skill</i>	<i>Job Opening</i>	<i>Change from Prior Year</i>	<i>Aligns with APS Offerings</i>	<i>Area to Explore</i>
<i>Management consulting</i>	6,411	-23.89%		Yes
<i>Forecasting</i>	6,390	+10.98%		No
<i>Microsoft Active Directory</i>	6,324	+27.09%		Yes
<i>Product development</i>	6,159	+7.98%		Yes
<i>Critical thinking</i>	6,097	+19.25%	All CTE Classes	
<i>Virtualization</i>	6,091	+11.66%	Visual Digitization	
<i>C-sharp</i>	6,030	+11.42%		No
<i>Administrative support</i>	5,871	+12.99%	Intro to Computer Applications	
<i>Work ethics</i>	5,782	+10.70%	All CTE Classes	
<i>Practical Extraction and Reporting Language</i>	5,686	-1.95%		No
<i>National Institute of Standards and Technology</i>	5,656	+52.37%		No
<i>Salesforce CRM SFDC</i>	5,605	+35.81%		No
<i>Business operations</i>	5,500	+43.79%	Intro to Business and Marketing	
<i>Amazon Web Services</i>	5,493	+103.44%		Yes
<i>Microsoft Project</i>	5,393	+13.63%		Yes
<i>Website development / programming</i>	5,338	+104.44%	Intro to Computer Applications	
<i>Big Data</i>	5,255	+8.02%		Yes
<i>Business Intelligence</i>	5,221	+5.11%		No
<i>Ability to learn</i>	5,133	+19.62%	All CTE Classes	
<i>Customer account management</i>	5,102	+22.56%		Yes
<i>Network Security</i>	5,084	+7.48%	Cyber Security	
<i>SAP</i>	5,071	-6.56%		No
<i>Cloud Computing</i>	4,962	+10.29%		Yes
<i>System administration</i>	4,941	+10.46%		Yes
<i>jQuery</i>	4,938	+17.54%		Yes
<i>Transmission Control Protocol</i>	4,916	+13.61%		No
<i>Open source technology</i>	4,863	+18.29%		Yes
<i>Service Oriented Architecture</i>	4,707	-0.08%		Yes

Table 11: Local Job Openings for Bachelor’s Degree by Certification

<i>Certification</i>	<i>Job Openings</i>	<i>Change from Prior Year</i>	<i>Aligns with APS Offerings</i>	<i>Area to Explore</i>
<i>Top Secret Sensitive Compartmented Information</i>	24,753	17.04%		No
<i>Secret Clearance</i>	22,746	658.71%		No
<i>Top Secret Clearance</i>	13,327	-15.01%		No
<i>Driver's License</i>	8,328	25.97%		No

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Certification	Job Openings	Change from Prior Year	Aligns with APS Offerings	Area to Explore
<i>Certified Information Systems Security Professional</i>	8,233	32.19%		Yes
<i>Project Management Professional</i>	7,363	20.88%		No
<i>Certified Registered Nurse</i>	7,254	19.31%		Yes
<i>Certified Public Accountant</i>	4,359	-1.93%		No
<i>Basic Life Support</i>	3,808	39.33%	EMT	
<i>Cisco Certified Network Associate</i>	3,269	31.18%	Intro to Information Technology	
<i>DoD 8570 Certification</i>	2,905	34.06%		No
<i>Continuing Education</i>	2,803	164.68%		Yes
<i>Certified Information Systems Auditor</i>	2,411	24.54%		No
<i>Microsoft Certified Systems Engineer</i>	2,374	5.75%	Intro to Information Technology	
<i>Single Scope Background Investigation</i>	2,200	11.96%		No
<i>CI Poly</i>	2,155	592.93%		No
<i>ITIL Foundation certification (v3)</i>	2,121	26.55%		No
<i>System Administrator</i>	2,115	8.07%		No
<i>Certified Information Security Manager</i>	2,108	41.86%		Yes
<i>Project Management Institute</i>	2,098	9.73%		No
<i>Certified Ethical Hacker</i>	2,045	36.52%		Yes
<i>Cisco Certified Network Professional</i>	2,037	18.98%	Cyber Security	
<i>Certification in Cardiopulmonary Resuscitation</i>	1,950	23.42%	EMT	
<i>Oracle Database 11g Administrator Certified Professional</i>	1,805	-13.55%		Yes
<i>Occupational Safety & Health Administration Certification</i>	1,740	24.91%	Computer Science	
<i>Professional Engineer</i>	1,725	20.88%		No
<i>Certified Scrum Master</i>	1,523	55.09%		No
<i>Certification in Ethics</i>	1,470	12.82%		Yes
<i>Advanced Cardiac Life Support</i>	1,449	19.85%	EMT	
<i>CompTIA Security+</i>	1,366	33.01%	Cyber Security	
<i>Six Sigma Green Belt</i>	1,322	23.78%		No
<i>Information Assurance Management</i>	1,311	39.32%		No
<i>Global Information Assurance Certification</i>	1,296	33.20%		No
<i>Information Assurance Technicians</i>	1,283	-1.16%		No
<i>Security certification</i>	1,262	14.00%		Yes
<i>Business Process Management Programming Languages</i>	1,262	0.24%	Computer Science	
<i>IAT Level 2</i>	1,167	88.83%		No

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Certification	Job Openings	Change from Prior Year	Aligns with APS Offerings	Area to Explore
<i>Security+ Certification</i>	1,095	46.98%	Cyber Security	
<i>Microsoft Certified Systems Administrator</i>	1,071	39.82%	Intro to Computer Applications	
<i>GIAC Certified Incident Handler</i>	1,069	49.30%		No
<i>Public trust security clearance</i>	1,007	92.18%		No
<i>Cisco Certified Internetwork Expert</i>	987	33.38%		Yes
<i>SANS Certified</i>	943	42.66%		No
<i>First Aid certification</i>	908	9.79%	EMT	
<i>Nationwide Mortgage Licensing System</i>	907	-31.60%		Yes
<i>FAR Part 23 certification</i>	900	30.62%		No
<i>Systems Security Certified Practitioner</i>	886	40.41%		Yes
<i>Professional in Human Resources</i>	874	14.10%		No
<i>Engineer-In-Training</i>	874	12.48%		Yes
<i>Microsoft Certified IT Professional</i>	863	3.48%	Intro to Information Technology	
<i>FS Poly</i>	860	681.82%		No
<i>GIAC Security Essentials Certification</i>	858	36.19%		Yes
<i>Certification Authorization Professional</i>	838	53.20%		No
<i>Early Childhood Education</i>	837	3.85%	Teachers for Tomorrow	
<i>Certified Internal Auditor</i>	828	-12.57%		No
<i>Telecommunications</i>	793	10.91%	Electricity	
<i>Accreditation Board for Engineering and Technology</i>	755	-20.69%		Yes
<i>HAZMAT</i>	726	38.29%		No
<i>Health Insurance Portability and Accountability Act - HIPPA</i>	712	3.94%		No
<i>FINRA Series 7</i>	685	0.44%		No
<i>Accredited Business Communicator</i>	677	203.59%		No
<i>Senior Professional in Human Resources</i>	673	15.24%		No
<i>Licensed Practical Nurse</i>	656	149.43%		Yes
<i>DOD Top secret</i>	652	-9.07%		No
<i>NISPOM</i>	613	25.36%		No
<i>Associate of Casualty Actuarial Society</i>	612	55.73%		Yes
<i>Special Education</i>	609	17.34%	Teachers for Tomorrow	
<i>VMware Certified Professional</i>	608	3.93%		Yes
<i>Microsoft Certified Professional</i>	598	-6.12%	Intro to Business and Information Technology	

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Certification	Job Openings	Change from Prior Year	Aligns with APS Offerings	Area to Explore
<i>GIAC Certified Intrusion Analyst</i>	579	14.65%		No
<i>Chartered Financial Analyst</i>	575	3.05%		No
<i>CMMI Level 3 certifications</i>	572	14.86%		No
<i>State insurance license</i>	569	0.18%		No
<i>Systems Architect</i>	552	49.59%	Intro to Information Technology	
<i>GIAC Security Leadership Certification</i>	552	119.05%		Yes
<i>Red Hat Certified Engineer</i>	543	79.80%		Yes
<i>Cisco Intrusion Prevention System Specialist</i>	529	35.29%		Yes
<i>Child Development Associate</i>	521	7.87%		Yes
<i>Certified Scrum Coach</i>	519	-43.65%		No
<i>Pediatric Advanced Life Support</i>	491	15.26%	EMT	
<i>Food safety programs</i>	486	8.72%	Culinary Arts and Science	
<i>Application Developer</i>	484	18.05%	Computer Science	
<i>Automated External Defibrillator</i>	469	24.73%	EMT	
<i>DOD Clearance</i>	452	33.73%		No
<i>Information Assurance Certificate</i>	450	6.89%		No
<i>Defense Federal Acquisition Regulation Supplement</i>	446	19.25%		No
<i>Certified Government Financial Manager</i>	446	-28.87%		No
<i>Department of Health and Human Services</i>	445	14.99%		NO
<i>Financial Industry Regulatory Authority</i>	440	-15.55%		No
<i>Certified Practical Nurse, Long-term care</i>	416	49.64%		Yes
<i>National Security Agency</i>	416	-7.14%		Yes
<i>IBM Rational Unified Process</i>	407	-36.60%		No
<i>Microsoft Certified Technology Specialist</i>	401	-4.98%	Intro to Information Technology	
<i>Governance, Risk, and Compliance systems</i>	399	-11.53%		No
<i>Physical Therapist Certification</i>	397	6.72%	PT/Sports Medicine	
<i>Distinguished Logistics Professional</i>	390	18.90%		No
<i>Offensive Security Certified Professional</i>	389	168.28%		No
<i>Forensic computer certifications</i>	386	8.12%	Forensics Science	
<i>GIAC Certified Enterprise Defender</i>	371	78.37%		No
<i>Certified Financial Planner</i>	362	23.97%		Yes

Graduate Degree

Table 12: Local Job Openings for Graduate Degree by Occupation

Occupation	Job Openings	Aligns with APS Offerings	Area to Explore
<i>Lawyers</i>	1,992		Yes
<i>Medical Scientists, Except Epidemiologists</i>	1,434		No
<i>Physical Therapists</i>	953	PT/Sports Medicine	
<i>Management Analysts</i>	761		No
<i>Medical and Health Services Managers</i>	739	Intro to Medical Science	
<i>Computer and Information Research Scientists</i>	533		Yes
<i>Occupational Therapists</i>	527	PT/Sports Medicine	
<i>Managers, All Other</i>	515		No
<i>Mental Health and Substance Abuse Social Workers</i>	463		No
<i>Registered Nurses</i>	448		Yes
<i>Computer Systems Engineers/Architects</i>	395	Computer Science	
<i>Market Research Analysts and Marketing Specialists</i>	393	Intro to Business and Marketing	
<i>Software Developers, Applications</i>	386	Computer Science	
<i>Physician Assistants</i>	362		Yes
<i>Nurse Practitioners</i>	361		Yes
<i>Speech-Language Pathologists</i>	352		No
<i>Information Technology Project Managers</i>	346	Intro to Information Technology	
<i>Family and General Practitioners</i>	341		No
<i>Computer Systems Analysts</i>	337	Computer Science	
<i>Statisticians</i>	317		No
<i>Marketing Managers</i>	295		Yes
<i>Computer and Information Systems Managers</i>	279	Intro to Information Technology	
<i>Community and Social Service Specialists, All Other</i>	275		Yes
<i>Healthcare Social Workers</i>	274		No
<i>Social and Human Service Assistants</i>	273		No
<i>Information Security Analysts</i>	266		Yes
<i>Pharmacists</i>	264	Pharmacy Tech	
<i>Business Operations Specialists, All Other</i>	258	Intro to Business and Marketing	
<i>Social and Community Service Managers</i>	218		No
<i>Education Administrators, Elementary and Secondary School</i>	209		No

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Occupation	Job Openings	Aligns with APS Offerings	Area to Explore
<i>Librarians</i>	201		No
<i>Environmental Scientists and Specialists, Including Health</i>	195		Yes
<i>Operations Research Analysts</i>	194		Yes
<i>Public Relations and Fundraising Managers</i>	191		No
<i>Clinical Psychologists</i>	187		No
<i>Instructional Coordinators</i>	187		Yes
<i>Executive Secretaries and Executive Administrative Assistants</i>	183	Intro to Computer Applications	
<i>Economists</i>	178		Yes
<i>Psychiatrists</i>	177		No
<i>Educational, Guidance, School, and Vocational Counselors</i>	176		Yes
<i>General and Operations Managers</i>	172		No
<i>Public Relations Specialists</i>	172		Yes
<i>Veterinarians</i>	167	Vet Tech	
<i>Internists, General</i>	167		No
<i>Computer User Support Specialists</i>	166	Intro to Information Technology	
<i>Network and Computer Systems Administrators</i>	159	Intro to Information Technology	
<i>Physicians and Surgeons, All Other</i>	154		Yes
<i>Financial Managers, Branch or Department</i>	153		Yes
<i>Accountants</i>	148		Yes
<i>Health Specialties Teachers, Postsecondary</i>	142	Teachers for Tomorrow	
<i>Retail Salespersons</i>	134		No
<i>Chief Executives</i>	133	Culinary Arts and Science	
<i>Surgeons</i>	127		Yes
<i>Dentists, General</i>	127		Yes
<i>Education Administrators, Postsecondary</i>	126		No
<i>Training and Development Specialists</i>	125		Yes
<i>Child, Family, and School Social Workers</i>	120		No
<i>Web Developers</i>	117	Design Media and Web Technologies	
<i>Human Resources Managers</i>	116		No
<i>Financial Analysts</i>	116		Yes
<i>Mental Health Counselors</i>	110		No
<i>Business Teachers, Postsecondary</i>	100	Intro to Business and Marketing	

Occupation	Job Openings	Aligns with APS Offerings	Area to Explore
<i>Clinical Research Coordinators</i>	98		Yes
<i>Optometrists</i>	92		Yes
<i>Natural Sciences Managers</i>	90	Small Animal Science	
<i>Urban and Regional Planners</i>	88		Yes
<i>Auditors</i>	87		Yes
<i>Vocational Education Teachers, Postsecondary</i>	82	Teachers for Tomorrow	
<i>Audiologists</i>	80		Yes
<i>Obstetricians and Gynecologists</i>	79		No
<i>Industrial Engineers</i>	78	PLTW/Tech Ed	
<i>Treasurers and Controllers</i>	75		Yes
<i>Emergency Management Directors</i>	73		Yes
<i>Budget Analysts</i>	71		Yes
<i>Epidemiologists</i>	69		No
<i>Hospitalists</i>	69		No
<i>First-Line Supervisors of Office and Administrative Support Workers</i>	68		No
<i>Pediatricians, General</i>	67		Yes
<i>Electronics Engineers, Except Computer Software Developers, Systems Software</i>	66	PLTW/Tech Ed	
<i>Computer Science Teachers, Postsecondary</i>	65	Computer Science	
<i>School Psychologists</i>	63		Yes
<i>Paralegals and Legal Assistants</i>	59		Yes
<i>Computer Programmers</i>	59	Computer Science	
<i>Sales Managers</i>	58		No
<i>Architectural and Engineering Managers</i>	57	Tech Ed	
<i>English Language and Literature Teachers, Postsecondary</i>	55	Teachers for Tomorrow	
<i>Aerospace Engineers</i>	55	PLTW/Tech Ed	
<i>Maintenance and Repair Workers, General</i>	55		Yes
<i>Foreign Language and Literature Teachers, Postsecondary</i>	54	Teachers for Tomorrow	
<i>Intelligence Analysts</i>	52		Yes
<i>Electrical Engineers</i>	51	PLTW/Tech Ed	
<i>Software Quality Assurance Engineers and Testers</i>	50	Computer Science/Tech Ed	
<i>Industrial-Organizational Psychologists</i>	50		No
<i>Database Administrators</i>	49		Yes
<i>Civil Engineers</i>	48	PLTW/Tech Ed	
<i>Critical Care Nurses</i>	46		Yes

Occupation	Job Openings	Aligns with APS Offerings	Area to Explore
<i>Nursing Instructors and Teachers, Postsecondary</i>	45	Teachers for Tomorrow	
<i>Technical Writers</i>	44		Yes
<i>Anesthesiologists</i>	42		No
<i>Services Offered</i>	218		No
<i>Others</i>	3,070		
<i>Total</i>	25,228		

Table 13: Local Job Openings for Graduate Degree by Hard and Soft Skills

Required Skill	Job Openings	Change from Prior Year	Aligns with APS Offerings	Area to Explore
<i>Oral and written communication skills</i>	6,649	0.99%	All CTE	
<i>Integrity</i>	2,455	8.92%	All CTE	
<i>Creativity</i>	2,231	1.46%	All CTE	
<i>Marketing</i>	1,834	49.47%		Yes
<i>Project Management</i>	1,784	2.41%		Yes
<i>Detail oriented</i>	1,636	9.95%	All CTE	
<i>Team-oriented, teamwork</i>	1,607	6.07%	All CTE	
<i>Microsoft Office</i>	1,597	-1.48%	Intro to Computer Applications	
<i>Problem solving</i>	1,560	-18.11%	All CTE	
<i>Management skills</i>	1,497	74.07%		Yes
<i>Work independently</i>	1,494	-16.58%	All CTE	
<i>Management experience</i>	1,390	134.80%		Yes
<i>Analytical skills</i>	1,264	0.88%	All CTE	
<i>Business development</i>	1,254	-2.56%	Intro to Business and Marketing	
<i>Microsoft PowerPoint</i>	1,237	-4.63%	Intro to Computer Applications	
<i>Strong leadership skills</i>	1,192	7.00%	All CTE	
<i>Personnel management</i>	1,168	-40.38%		Yes
<i>Data Analysis</i>	1,155	11.49%	All CTE	
<i>Self-starting / Self-motivated</i>	1,112	-8.25%	All CTE	
<i>Organizational skills</i>	1,107	0.18%	All CTE	
<i>Program management</i>	1,075	-7.96%		Yes
<i>Quality Assurance</i>	1,012	-6.64%	All CTE	
<i>Negotiation skills</i>	979	-1.51%		Yes
<i>Coaching</i>	863	7.20%		Yes
<i>Time management</i>	798	-16.35%	All CTE	
<i>Strategic planning</i>	796	-8.08%		Yes

Required Skill	Job Openings	Change from Prior Year	Aligns with APS Offerings	Area to Explore
<i>Financial management</i>	790	-6.40%	Economics and Personal Finance	
<i>Pediatrics</i>	790	-11.73%		No
<i>Strong interpersonal skills</i>	788	12.09%	All CTE	
<i>Risk Management</i>	774	8.25%		Yes
<i>Technical support</i>	685	0.59%		Yes
<i>Software development</i>	638	94.51%	Computer Science	
<i>Program development</i>	636	23.50%		Yes
<i>Ability to travel</i>	636	3.25%		No
<i>Statistical analysis</i>	629	23.33%		Yes
<i>Budgeting</i>	617	4.58%	All CTE	
<i>Behavioral health</i>	611	12.73%		No
<i>Entrepreneurial</i>	610	9.71%	Entrepreneurship	
<i>Microsoft Word</i>	608	-4.10%	Intro to Computer Applications	
<i>Data management</i>	590	9.26%		Yes
<i>Product development</i>	586	0.51%		Yes
<i>Quality control</i>	550	-1.08%	All CTE	
<i>Java</i>	539	-2.71%	Computer Science	
<i>Structured query language</i>	531	-19.18%	Computer Science	
<i>Troubleshooting</i>	530	-7.67%	All CTE	
<i>Geriatrics</i>	492	105.00%		No
<i>Python</i>	473	36.71%	Computer Science	
<i>Process Improvement</i>	470	-3.09%		Yes
<i>Cyber security</i>	461	17.60%	Cyber Security	
<i>Juris</i>	459	-8.93%		No
<i>Patient Electronic Medical Record</i>	454	-2.58%	Intro to Medical Science	
<i>Highly motivated</i>	454	-6.97%	All CTE	
<i>Oracle</i>	448	-12.67%		Yes
<i>Customer service oriented</i>	444	-7.88%		Yes
<i>Statistical Analysis System</i>	437	0.69%		Yes
<i>Quality improvement</i>	428	19.89%	All CTE	
<i>Critical thinking</i>	423	-2.31%	All CTE	
<i>Conflict resolution/management</i>	420	-1.41%	All CTE	
<i>Resource Management</i>	419	-9.89%		Yes
<i>Business process modeling</i>	418	-14.52%	Intro to Business and Marketing	
<i>Legal research</i>	418	-14.52%		Yes
<i>Administrative support</i>	400	-7.83%		Yes
<i>Medicaid</i>	389	113.74%		No
<i>Forecasting</i>	367	4.56%		Yes

Required Skill	Job Openings	Change from Prior Year	Aligns with APS Offerings	Area to Explore
<i>Crisis intervention techniques</i>	366	30.25%		Yes
<i>Linux</i>	365	-0.54%	Computer Science	
<i>Change Management</i>	358	-3.50%		Yes
<i>Basic computer skills</i>	357	-30.68%	Computer Science	
<i>Immunology</i>	351	16.61%		Yes
<i>Management consulting</i>	351	-32.89%		No
<i>Bilingual</i>	344	-4.44%		Yes
<i>Word processing</i>	343	-29.57%	Intro to Computer Applications	
<i>Bilingual Spanish</i>	342	13.25%		Yes
<i>MATLAB</i>	335	2.76%		Yes
<i>Adaptability</i>	335	18.79%	All CTE	
<i>Big Data</i>	323	-1.52%		Yes
<i>Data analytics</i>	322	29.84%		Yes
<i>Microsoft Excel</i>	318	-5.07%	Intro to Computer Applications	
<i>Applied research</i>	315	29.10%		Yes
<i>Work ethics</i>	314	14.18%	All CTE	
<i>Systems Integration</i>	313	7.93%		Yes
<i>Technical leadership / aptitude</i>	312	-5.45%	All CTE	
<i>Statistical Package for the Social Sciences</i>	301	12.31%		No
<i>Molecular biology</i>	293	0.69%		Yes
<i>Machine learning techniques</i>	291	57.30%		Yes
<i>Public speaking</i>	283	16.46%	All CTE	
<i>Information Management</i>	280	76.10%		No
<i>Microsoft SharePoint</i>	278	-19.42%		Yes
<i>Due diligence</i>	276	2.60%	All CTE	
<i>Statistical software</i>	275	47.06%		Yes
<i>Policy Analysis</i>	268	8.94%		No
<i>Knowledge management</i>	262	181.72%		Yes
<i>Fundraising</i>	262	-15.48%		Yes
<i>Risk assessment</i>	261	-1.88%		Yes
<i>Business requirements gathering</i>	259	-13.95%		No
<i>UNIX</i>	256	1.19%		Yes
<i>Business operations</i>	256	8.02%	Intro to Business and Marketing	
<i>Dependability</i>	253	-42.37%	All CTE	
<i>Systems Development Life Cycle</i>	249	5.06%		Yes
<i>Stata</i>	248	8.30%		No

Table 14: Local Job Openings for Graduate Degree by Certification

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<i>Certification</i>	<i>Job Openings</i>	<i>Change from Prior Year</i>	<i>Aligns with APS Offerings</i>	<i>Area to Explore</i>
<i>Secret Clearance</i>	1,562	684.92%		No
<i>Continuing Education</i>	1,321	215.27%	All CTE	
<i>Board Certified</i>	977	35.32%		Yes
<i>Physical Therapist Certification</i>	949	145.85%	PT/Sports Medicine	
<i>Top Secret Clearance</i>	838	-30.22%		No
<i>Top Secret Sensitive Compartmented Information</i>	820	-18.81%		No
<i>Driver's License</i>	746	12.52%		No
<i>Certified Registered Nurse</i>	561	42.03%		Yes
<i>Basic Life Support</i>	533	9.90%	EMT	
<i>Certification in Cardiopulmonary Resuscitation</i>	477	5.30%	EMT/ Health and Medical Classes	
<i>Licensed Clinical Social Worker</i>	463	46.52%		No
<i>Certification in Ethics</i>	453	3.19%		No
<i>Project Management Professional</i>	389	5.99%		Yes
<i>Certified Family Nurse Practitioner</i>	311	69.95%		Yes
<i>Doctor of Medicine</i>	274	-34.13%		Yes
<i>American Nurses Credentialing Center</i>	265	25.00%		Yes
<i>Board Eligible</i>	263	6.05%		No
<i>Advanced Cardiac Life Support</i>	259	0.39%	EMT	
<i>Certified Public Accountant</i>	246	-3.91%		Yes
<i>Speech and Language Pathologist</i>	239	69.50%		Yes
<i>Family Physician / Internal Medicine (FP/IM)</i>	218	-20.44%		Yes
<i>Doctor of Pharmacy</i>	187	14.72%	Pharmacy Tech	
<i>Advanced Practice Nurse</i>	178	28.99%		Yes
<i>Health Insurance Portability and Accountability Act - HIPPA</i>	176	33.33%		No
<i>Certified Practical Nurse, Long-term care</i>	169	24.26%		Yes
<i>Certified Information Systems Security Professional</i>	167	25.56%		No
<i>Occupational Safety & Health Administration Certification</i>	164	19.71%	Construction Technology	
<i>Doctor of Veterinary Medicine</i>	160	-12.57%	Vet Tech	
<i>Medical License</i>	159	-45.73%		Yes
<i>Family Medicine</i>	150	6.38%		Yes
<i>Orthopaedic Certified Specialist</i>	149	N/A		Yes
<i>Department of Health and Human Services</i>	149	-12.35%		No

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Certification	Job Openings	Change from Prior Year	Aligns with APS Offerings	Area to Explore
<i>Single Scope Background Investigation</i>	130	-13.91%		No
<i>First Aid certification</i>	130	39.78%	EMT	
<i>Psychiatry</i>	124	24.00%		No
<i>Licensed Clinical Professional Counselor</i>	114	225.71%		No
<i>Public trust security clearance</i>	114	267.74%		No
<i>Certificate of Clinical Competence</i>	111	8.82%		No
<i>Licensed Independent Clinical Social Worker</i>	110	46.67%		No
<i>American Speech-Language Hearing Association</i>	109	62.69%		No
<i>Pediatric Advanced Life Support</i>	102	59.38%		Yes
<i>Licensed marriage and family therapist</i>	101	18.82%		No
<i>Good Laboratory Practices certifications</i>	95	25.00%		No
<i>Project Management Institute</i>	91	-36.81%		Yes
<i>Certified Internal Auditor</i>	89	1.14%		Yes
<i>Doctor of Dental Surgery</i>	84	52.73%		Yes
<i>Licensed Professional Counselor</i>	83	6.41%		No
<i>CI Poly</i>	78	766.67%		No
<i>Doctor of Dental Medicine</i>	75	59.57%		Yes
<i>DoD 8570 Certification</i>	72	166.67%		No
<i>National Commission on Certification of Physician Assistants</i>	71	-28.28%		Yes
<i>Mental Health Nurse</i>	71	1083.33%		No
<i>HAZMAT</i>	69	-31.68%		Yes
<i>Chartered Financial Analyst</i>	66	-15.38%		Yes
<i>Pediatrics certification</i>	65	-8.45%		Yes
<i>Obstetrics & Gynecology</i>	65	35.42%		No
<i>Six Sigma Green Belt</i>	63	-11.27%		No
<i>American Library Association accredited</i>	62	-32.61%		No
<i>Certification in General Surgery</i>	59	43.90%		Yes
<i>Special Education</i>	59	20.41%		Yes
<i>Professional Engineer</i>	59	31.11%	PLTW/Tech Ed	
<i>Adult Nurse Practitioner</i>	57	54.05%		Yes
<i>Certified Information Systems Auditor</i>	56	33.33%	Intro to Information Technology	
<i>Certified Scrum Master</i>	55	-19.12%		No
<i>Advanced Certification Administrator</i>	53	89.29%		Yes
<i>ITIL Foundation certification (v3)</i>	53	35.90%		No
<i>Hematologist</i>	52	6.12%		No

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Certification	Job Openings	Change from Prior Year	Aligns with APS Offerings	Area to Explore
Oracle Database 11g Administrator Certified Professional	51	30.77%		Yes
English as Second Language	49	28.95%	Teachers for Tomorrow	
Food safety programs	49	-25.76%	Culinary Arts and Science	
Clinical Nurse Specialist	49	40.00%		Yes
EPA certification	47	-2.08%		Yes
Cisco Certified Network Professional	46	53.33%	Intro to Information Technology	
Child / Adolescent Psychiatrist	46	91.67%		No
Certified Outsourcing Professional	46	15.00%		No
Certified Occupational Therapy Assistant	46	4.55%	PT/Sports Medicine	
Advanced Practice Registered Nurse	45	-13.46%		Yes
Neonatal Resuscitation Program	45	32.35%		Yes
Early Childhood Education	45	80.00%	Teachers for Tomorrow	
Educational Council of Foreign Medical Graduates	44	-43.59%		No
Nephrologist	44	57.14%		No
Anesthesiology	43	2.38%		No
Cisco Certified Network Associate	41	28.13%	Intro to Information Technology	
Basic Cardiac Life Support	41	-28.07%	EMT	
Certified Information Security Manager	39	-13.33%		Yes
Association for Clinical Pastoral Education	38	72.73%		Yes
Information Assurance Technicians	38	72.73%		Yes
Dermatology	37	54.17%		Yes
Business Process Management Prog. Languages	37	-9.76%		Yes
FAR Part 23 certification	37	2.78%		No
School Psychologist	37	117.65%		No
Health and Fitness Specialist	37	42.31%	PT/Sports Medicine	
Gerontological Nurse Practitioner	36	44.00%		No
Occupational Therapist Registered	36	111.76%		Yes
National Committee for Quality Assurance	36	-12.20%		No
Automated External Defibrillator	36	24.14%	EMT	
Licensed Psychologist	36	-20.00%		No
DOD Top secret	35	75.00%		No
FS Poly	35	775.00%		No
Telecommunications	34	-19.05%	Electricity	