

Common Career Technical Core

An Introduction to a Framework for Impacting
Students, Communities and the Economy

National Association of State Directors of CTE (NASDCTEc)

for
ACTEA 2014



Domains of College and Career Readiness

Defines the **academic** knowledge and skills students need to be successful in college and careers.

Specifies the **non-cognitive**, socio-emotional knowledge and skills that help students successfully transition from high school to college or careers.

Describes the **career-specific** opportunities for students to gain the knowledge, skills, and competencies they need to pursue and succeed in their chosen career.

What are Career Clusters®?

- Career Clusters® are groupings of occupations and industries
- Represent knowledge and skills demanded by those industries
- Used as an organizing tool for curriculum design
- Used for career counseling and guidance
- Connect to business and industry expectations and priorities



Definitions

- **Career Cluster[®]** – organizer of knowledge and skills needed by a broad industry
- **Career Pathway** – organizer of knowledge and skills statements shared by professions
- **Program of Study** – sequence of instruction that prepares individuals for careers of their choice

16 Career Clusters®

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



Career Pathways

- 79 Career Pathways
 - Examples under Agriculture, Food & Natural Resources
 - Food Products & Processing Systems
 - Plant Systems
 - Animal Systems
 - Power, Structural & Technical Systems
 - Natural Resources Systems
 - Environmental Service Systems
 - Agribusiness Systems

An Example

Career Cluster®

Agriculture, Food & Natural Resources

Career Pathway

Food
Products &
Processing
Systems

Plant
Systems

Animal
Systems

Agribusiness
Systems

Power,
Structural &
Technical
Systems

Natural
Resources
Systems

Environmental
Service Systems

Career Options

Aquacultural
Managers

Farm Labor
Contractors

Precision Agriculture
Technicians

Crop & Livestock
Managers

Food
Scientists



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Options in Every Career Cluster®



**Animal Scientist, Economist,
Biochemist**

**Soil and Water Conservationist,
Forester, Crop & Livestock Manager**

**Food Science Technician, Farmer or
Rancher, Nursery Greenhouse Manager**

**Grounds Maintenance Worker, Floral
Designer, Tree Trimmer and Pruner**

***Agriculture, Food & Natural
Resources***

Career Cluster®

Source: O*Net Career information



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Options in Every Career Cluster®



**Advanced
Degree**

**Architect, Materials Researcher, Urban
Planner**

**4-Year
College Degree**

**Construction Manager, Cost
Estimator, Facilities Engineer**

**Technical
Degree
or Training**

**Electrician, Surveyor, Architectural
Draftsman, Safety Director**

**High School only
with
on-the-job training**

**Painter, Roofer, Insulation
Installer, Framers**

**Architecture and Construction
Career Cluster®**

*Source: O*Net Career information*

Influence on the System

Employment: Career Advancement

Continuing Education and Lifelong Learning

Postsecondary: Career Preparation

Achieving credentials: college, certification, apprenticeship, military

9-12: Programs of Study Related to a Career Goal

Academics and technical courses, intensive guidance, individual graduation plans

Grade 8: Career Exploration and Transition

Develop graduation plans based upon personal interest/cluster areas

6-8: Initial Career Exploration

Discovering interest areas

K-5: Understanding the Importance and Value of Work and Jobs

Introduction to the world of careers



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What Career Clusters® DO:

- ✓ Provide a framework to integrate programs
- ✓ Provide a framework for seamless education
- ✓ Provide MORE career options for learners
- ✓ Provide a framework for addressing the entire world of work
- ✓ Provide a picture of how Knowledge and Skills transfer vertically and horizontally

What Career Clusters®

DON'T Do:

- ✓ Do not add yet “another thing”
- ✓ Do not take away current programs
- ✓ Do not limit state determination of course offerings
- ✓ Do not take away occupational areas
- ✓ Do not track learners into a single job

Common Career Technical Core Design & Components

Components of CCTC

Standards for Career Ready Practice

- 12 practices with suggested indicators
- Positioned to be applied across the entire continuum of instruction
- Modeled after Common Core's Standards for Mathematical Practice

Cluster- and Pathway- Level Content Standards

- Expectations within Career Cluster[®] and Pathways that frame a Program of Study
- Based on Validated Knowledge and Skills Statements
- Used to align expectations across states



Career Ready Practices

1. **Act as a responsible and contributing citizen and employee:**
 - *Understand obligations and responsibilities of being a member of a community*
 - *Think about the near-term and long-term consequences of their actions*
 - *Act in ways that contribute to the betterment of their teams, families, community and workplace; be reliable and consistent*
2. **Apply appropriate academic and technical skills:**
 - *Make connections between abstract concepts with real-world applications*
 - *Make correct insights about when it is appropriate to apply the use of an academic skill in a workplace situation*

Career Ready Practices

3. Attend to personal health and financial well-being:

- *Understand the relationship between personal health, workplace performance and personal well-being*
- *Take regular action to contribute to their personal financial well-being*

4. Communicate clearly and effectively and with reason:

- *Communicate thoughts, ideas and action plans with clarity, whether using written, verbal and/or visual methods*
- *Skilled at interacting with others, active listener, think about audience and prepare accordingly*

Career Ready Practices

5. Consider the environmental, social and economic impacts of decisions:

- *Understand the interrelated nature of actions and make decisions that positively impact and/or mitigate negative impact on others*
- *Utilize new technologies, procedures, materials and regulations*

6. Demonstrate creativity and innovation:

- *Think of ideas that solve problems in new/different ways, discern which ideas/suggestions will add greatest value*
- *Seek new methods and ideas from a variety of sources and seek to apply those ideas to own workplace*

Career Ready Practices

7. Employ valid and reliable research strategies:

- *Use reliable research process to search for new information*
- *Evaluate validity of sources when considering use and adoption of external information or practices*

8. Utilize critical thinking to make sense of problems and persevere in solving them:

- *Recognize problems in the workplace, understand the nature of the problem, and devise effective plans to solve the problem*

Career Ready Practices

9. Model integrity, ethical leadership and effective management:

- *Understand integrity and act on this understanding in every decision*
- *Use a variety of means to positively impact the direction and actions of a team or organization, and apply insights into human behavior to change others' actions, attitudes and/or beliefs.*

10. Plan education and career paths aligned to personal goals:

- *Take personal ownership of educational and career goals*
- *Have perspective on pathways available and time, effort, experience and requirements to pursue each, including a path of entrepreneurship*
- *Seek counselors, mentors, other experts to assist in the planning and execution of career and personal goals*

Career Ready Practices

11. Use technology to enhance productivity:

- *Find and maximize productive value of technology to accomplish workplace tasks and solve workplace problems*
- *Be flexible and adaptive in acquiring and using new technology; proficient with ubiquitous technology.*

12. Work productively in teams, using cultural global competence:

- *Contribute to every formal/informal team*
- *Apply awareness of cultural differences to avoid barriers to productive and positive interaction and increase the contribution of all team members*
- *Plan and facilitate effective team meetings.*

Standards of Mathematical Practice

Common Core mathematics is a way to approach teaching so that students develop a mathematical mindset and see math in the world around them. We are making problem-solvers. No matter what your objectives, textbook, or grade level, **the eight mathematical practice standards are a guide to good math instruction.** Here they are in plain English with suggestions for incorporating them into your everyday math class.

Standards of Mathematical Practice

K-12 Umbrella over math content standards.

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.

CAREER READY PRACTICE	COURSES/ CURRICULUM	COMMON CORE STATE STANDARDS
Act as a responsible and contributing citizen and employee	<ul style="list-style-type: none"> All CTE All academic 	
Apply appropriate academic and technical skills	<ul style="list-style-type: none"> All CTE All academic 	CCSS in mathematics & ELA/Literacy
Attend to personal health and financial well-being	<ul style="list-style-type: none"> All CTE Mathematics/ Economics Health/PE 	
Communicate clearly and effectively and with reason	<ul style="list-style-type: none"> All CTE All academic 	CCSS ELA/Literacy <ul style="list-style-type: none"> Speaking & Listening Writing/Writing for History, Science, Tech Subjects CCSS Mathematics <ul style="list-style-type: none"> SMP.7: Attend to

CAREER READY PRACTICE	COURSES/ CURRICULUM	COMMON CORE STATE STANDARDS
Consider the environmental, social and economic impacts of decisions	<ul style="list-style-type: none"> • All CTE • Science 	SMP.4: Model with mathematics
Demonstrate creativity and innovation	<ul style="list-style-type: none"> • All CTE • All academic 	<p>CCSS ELA/Literacy</p> <ul style="list-style-type: none"> • Speaking & Listening • Reading for Information • Reading Science/Tech Subjects • Writing for History, Science, Tech Subjects <p>CCSS Mathematics</p> <ul style="list-style-type: none"> • SMP.1: Make sense of problems and persevere in solving them

CAREER READY PRACTICE	COURSES/ CURRICULUM	COMMON CORE STATE STANDARDS
Employ valid and reliable research strategies	<ul style="list-style-type: none"> • All CTE • All academic 	CCSS ELA/Literacy <ul style="list-style-type: none"> • Reading for Information • Reading Science/Tech Subjects • Writing for History, Science, Tech Subjects CCSS Mathematics <ul style="list-style-type: none"> • SMP.1 • SMP.3:Construct viable arguments & critique reasoning of others • SMP.5: Use appropriate tools strategically • Statistics & Probability
Utilize critical thinking to make sense of problems and persevere in	<ul style="list-style-type: none"> • All CTE • All academic 	CCSS ELA/Literacy CCSS Mathematics, especially <ul style="list-style-type: none"> • SMP.1 • SMP.2: Reason abstractly & quantitatively

CAREER READY PRACTICE	COURSES/ CURRICULUM	COMMON CORE STATE STANDARDS
Model integrity, ethical leadership and effective management	<ul style="list-style-type: none"> All CTE 	CCSS ELA/Literacy <ul style="list-style-type: none"> Speaking & Listening
Plan education and career paths aligned to personal goals	<ul style="list-style-type: none"> All CTE All academic 	
Use technology to enhance productivity	<ul style="list-style-type: none"> All CTE All academic 	CCSS ELA/Literacy <ul style="list-style-type: none"> Speaking & Listening Reading for Information Writing for History, Science, Tech Subjects CCSS Mathematics <ul style="list-style-type: none"> SMP.5
Work productively in teams, using cultural global competence	<ul style="list-style-type: none"> All CTE All academic 	CCSS ELA/Literacy <ul style="list-style-type: none"> Speaking & Listening CCSS Mathematics <ul style="list-style-type: none"> SMP.1

Business Management & Administration Career Cluster™ (BM)

1. Utilize mathematical concepts, skills and problem solving to obtain necessary information for decision-making in business.
2. Describe laws, rules and regulations as they apply to effective business operations.
3. Explore, develop and apply strategies for ensuring a successful business career.
4. Identify, demonstrate and implement solutions in managing effective business customer relationships.
5. Implement systems, strategies and techniques used to manage information in a business.
6. Implement, monitor and evaluate business processes to ensure efficiency and quality results.

Administrative Support Career Pathway (BM-ADM)

1. Plan, staff, lead and organize human resources to enhance employee productivity and satisfaction.
2. Access, evaluate and disseminate information for business decision making.
3. Plan, monitor and manage day-to-day business activities.

Business Information Management Career Pathway (BM-BIM)

1. Describe and follow laws and regulations affecting business operations and transactions.
2. Plan, monitor, manage and maintain the use of financial resources to ensure a business's financial wellbeing.
3. Access, evaluate and disseminate information for business decision making.
4. Plan, monitor and manage day-to-day business activities to sustain continued business functioning.
5. Plan, organize and manage an organization/department to achieve business goals.

General Management Career Pathway (BM-MGT)

1. Describe and follow laws and regulations affecting business operations and transactions.
2. Access, evaluate and disseminate information for business decision making.
3. Apply economic concepts fundamental to global business operations.
4. Employ and manage techniques, strategies and systems to enhance business relationships.
5. Plan, monitor, manage and maintain the use of financial resources to ensure a business's financial wellbeing.
6. Plan, monitor and manage day-to-day business activities to sustain continued business functioning.
7. Plan, organize and manage an organization/department to achieve business goals.
8. Create strategic plans used to manage business growth, profit and goals.

Human Resources Management Career Pathway (BM-HR)

1. Describe and follow laws and regulations affecting human resource operations.
2. Access, evaluate and disseminate information for human resources management decision making.
3. Motivate and supervise personnel to achieve completion of projects and business goals.
4. Plan, monitor and manage the use of financial and human resources to ensure a business's financial wellbeing.
5. Plan, staff, lead and organize human resources to enhance employee productivity and satisfaction.
6. Plan, monitor and manage day-to-day business activities to foster a healthy and safe work environment.
7. Plan, organize and implement compensation, benefits, health and safety programs.

Operations Management Career Pathway (BM-OP)

1. Describe and follow laws and regulations affecting business operations and transactions.
2. Develop and maintain positive customer relationships.
3. Apply inventory tracking systems to facilitate operational controls.

The process for developing the CCTC was informed by:

- High-quality state and industry standards;
- Input and guidance from educators, business and industry and state leaders; and
- Feedback from the public.

The CCTC includes a set of standards for each of the 16 Career Clusters® and their corresponding Career Pathways that define what students should know and be able to do after completing instruction in a program of study. The CCTC also includes an overarching set of **Career Ready Practices** that apply to all programs of study. The Career Ready Practices include 12 statements that address the knowledge, skills and dispositions that are important to becoming career ready.

[Download the CCTC here](#)

Learn more about the CCTC or share information about the initiative with these resources:

- [Setting a New Standard for Career Technical Education: Common Career Technical Core \(overview\)](#)
- [Career Ready Practices](#)
- [Webinar overview](#)

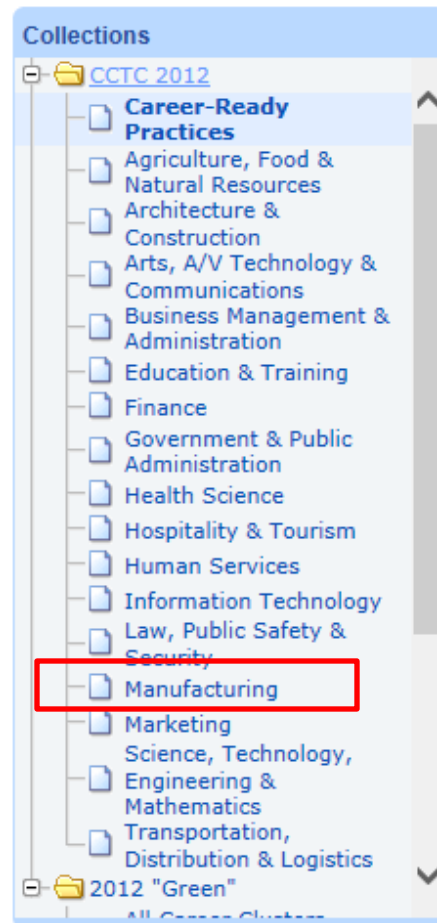
- **CCTC Online Database**

An online database of the CCTC standards provides an opportunity to create reports specific to the needs of the user. In addition, additional resources including performance elements and sample indicators for the CCTC standards are provided as a resource tool in the exploration and understanding of the standards.

- **State of Career Technical Education: An Analysis of State CTE Standards**

A national report examining states' CTE standards and the policies states use to implement their standards at the secondary and postsecondary levels. This report also compares each states' standards to the Common Career Technical Core, providing, for the first time ever, a baseline for states' CTE standards.

On-line data base



Career-Ready Practices

[Info/Getting Started](#)

Ready-made Excel Files by Career Cluster™ and Pathways:

1. [Career-Ready Practices 2012.xls](#)
2. [All 2012 Career Clusters™ and Pathways.xls](#)

Basic Search

Area

☐ Career-Ready Practices

Clear

Manufacturing

 [Info/Getting Started](#)

Ready-made Excel Files by Career ClustersTM and Pathways:

1. [Manufacturing 2012.xls](#)
2. [All 2012 Career ClustersTM and Pathways.xls](#)

Basic Search

Area

-  ☐ Career Cluster: Manufacturing
-  ☐ Career Pathway: Health, Safety and Environmental Assurance
-  ☐ Career Pathway: Logistics & Inventory Control
-  ☐ Career Pathway: Maintenance, Installation & Repair
-  ☐ Career Pathway: Manufacturing Production Process Development
-  ☐ Career Pathway: Production
-  ☐ Career Pathway: Quality Assurance



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Diagnose production process problems and take corrective action to meet production quality standards.

1. Communicate quality problems following the appropriate reporting process.
 - Review quality problems with production operators.
 - Communicate quality problems promptly to appropriate parties.
 - Use established processes to document quality problems.
 - Summarize defect trends and report them to appropriate parties.
2. Suggest or perform corrective actions to correct quality problems.
 - Make minor quality issues/adjustments immediately.
 - Document quality issues or adjustments properly.
 - Make sure that recommendations for action are clear, concise, and supported by data.
 - Make recommendations in a timely way to appropriate parties.
 - Document follow-up activities and indicate that corrective action was taken.
 - Document product quality following corrective action.
3. Determine appropriate action for sub-standard product.
 - Execute quality control procedures to catch sub-standard products promptly within the defined quality systems.
 - Document decisions regarding sub-standard products for future retrieval.
 - Process sub-standard products according to company policy.
 - Distribute documentation required for customers to appropriate parties.
4. Identify trends using records of process outcomes.
 - Maintain records on quality process to appropriate standards.
 - Chart outcomes of quality processes according to appropriate methods and standards.
 - Check data on quality processes for accuracy.
 - Analyze quality process performance data to identify trends.
 - Report quality process performance data to appropriate parties in a timely way.
5. Implement closed-loop corrective action to provide for ongoing production feedback.
 - Document evidence of corrective action in a timely manner.
 - Report change resulting from the corrective action to appropriate parties in the correct format.
 - Use spot checks to verify implementation of the corrective action.
 - Store reports properly for the required amount of time.
 - Perform ongoing audits to optimize the outcomes of the corrective actions.
 - Examine previous documentation on similar process issues to identify possible solutions.
6. Research energy consumption reduction in manufacturing.
 - Conduct analyses to reduce pollution or costly energy consumption.
 - Identify and recommend improvements to reduce waste and pollution for a given production process.



CTE In Your State



Get Involved



CTE Blog

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National Association of State Directors
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(NASDCTE)

Who We Are

Career Technical Education

Career Clusters®

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Plans of Study

The sample Plans of Study provide a resource for understanding the possible courses and educational experiences for students pursuing a program of study (POS). The models provided represent options within each of the 16 Career Clusters® and Career Pathways and serve to define the possibilities associated with each area. The programs of study are the courses and opportunities offered by the state, district, and school, while the plans of study represent the individual student choices associated with completing the program of study.

These model plans of study also represent models for programs of study by states' and educational institutions at the both the secondary and postsecondary levels. Each plan of study is available in either PDF or Excel. The Excel files are easily customizable to reflect the actual courses and offerings locally.

The plans of study provided are samples and are based on the 2008 Knowledge and Skills identified for each Career Cluster® and Career Pathway. The Knowledge and Skills referenced on the plans of study are displayed as Knowledge and Skills Charts available [here](#).

Plans of Study Templates

- [Agriculture, Food & Natural Resources](#)
- [Architecture & Construction](#)
- [Arts, Audio/Video Technology & Communications](#)
- [Business, Management & Administration](#)

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Business, Management & Administration

Cell contents in Excel document may be deleted or expanded by clicking in the particular cell you wish to alter.

Cluster Level Plan of Study



**PDF Plan of
Study**



**Excel Plan of
Study**

Management



**PDF Plan of
Study**



**PDF Insert
Page**



**Excel Plan of
Study**



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Business Financial Management & Accounting



**PDF Plan of
Study**



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**Excel Plan of
Study**



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Business, Management and Administration: Business Financial Management and Accounting Career Pathway Plan of Study for ► Learners ► Parents ► Counselors ► Teachers/Faculty

This Career Pathway Plan of Study (based on the Business Financial Management and Accounting Pathway of the Business, Management and Administration Career Cluster) can serve as a guide, along with other career planning materials, as learners continue on a career path. Courses listed within this plan are only recommended coursework and should be individualized to meet each learner's educational and career goals. *This Plan of Study, used for learners at an educational institution, should be customized with course titles and appropriate high school graduation requirements as well as college entrance requirements.

EDUCATION LEVELS	GRADE	English/ Language Arts	Math	Science	Social Studies/ Sciences	Other Required Courses Other Electives Recommended Electives Learner Activities	*Career and Technical Courses and/or Degree Major Courses for Business Financial Management and Accounting Pathway	SAMPLE Occupations Relating to This Pathway
Interest Inventory Administered and Plan of Study Initiated for all Learners								
SECONDARY	9	English/ Language Arts I	Algebra I or Geometry	Earth or Life or Physical Science or Biology	State History Geography	All plans of study should meet local and state high school graduation require- ments and college entrance requirements. Certain local student organization activi- ties are also important including public speak- ing, record keeping and work-based experi- ences.	• Business Essentials • Business Technology Applications	▶ Accountant ▶ Accounting Clerk ▶ Accounting Supervisor ▶ Accounts Receivable Clerk ▶ Adjuster ▶ Adjustment Clerk ▶ Assistant Treasurer ▶ Auditor ▶ Billing Clerk ▶ Billing Supervisor ▶ Bookkeeper ▶ Budget Analyst ▶ Budget Manager ▶ Cash Manager ▶ Certified Public Accountant ▶ Chief Financial Officer ▶ Collections Executive ▶ Controller ▶ Cost Accountant ▶ Finance Director ▶ Financial Accountant ▶ Investment Executive ▶ Merger and Acquisitions Manager ▶ Payroll Accounting Clerk ▶ Price Analyst ▶ Treasurer
	10	English/ Language Arts II	Geometry or Algebra II	Biology or Chemistry	U.S. History		• Business Communications • Business Finance	
	11	English/ Language Arts III	Pre-Calculus or Algebra II	Chemistry or Physics	World History Psychology		• Accounting	
	College Placement Assessments-Academic/Career Advisement Provided							
	12	English/ Language Arts IV	Pre-Calculus or Calculus or Trigonometry or Statistics	Physics or other science course	Government Economics		• Principles of Management • Advanced Accounting	
Articulation/Dual Credit Transcribed-Postsecondary courses may be taken/moved to the secondary level for articulation/dual credit purposes.								
POSTSECONDARY	Year 13	English Composition English Literature	Algebra or Calculus	Lab Science	Economics Psychology	All plans of study need to meet learners' career goals with regard to required degrees, li- censes, certifications or journey worker status. Certain local student organization activities may also be important to include.	• Financial Management • Managerial Accounting	
	Year 14	Speech/ Oral Communication Technical Writing			Sociology Public Policy		• Financial Accounting • Financial Records	
	Year 15	Continue courses in the area of specialization.					• Continue Courses in the Area of Specialization	
	Year 16						• Complete Business Financial Management and Accounting Major (4-year degree program)	



Health Science: Biotechnology Research and Development

Career Pathway Plan of Study for ▶ Learners ▶ Parents ▶ Counselors ▶ Teachers/Faculty

This Career Pathway Plan of Study (based on the Biotechnology Research and Development Pathway of the Health Science Career Cluster) can serve as a guide, along with other career planning materials, as learners continue on a career path. Courses listed within this plan are only recommended coursework and should be individualized to meet each learner's educational and career goals. *This Plan of Study, used for learners at an educational institution, should be customized with course titles and appropriate high school graduation requirements as well as college entrance requirements.

EDUCATION LEVELS	GRADE	English/ Language Arts	Math	Science	Social Studies/ Sciences	Other Required Courses Other Electives Recommended Electives Learner Activities	*Career and Technical Courses and/or Degree Major Courses for Biotechnology Research and Development Pathway	SAMPLE Occupations Relating to This Pathway
Interest Inventory Administered and Plan of Study Initiated for all Learners								
SECONDARY	9	English/ Language Arts I	Algebra I	Biology	State History Civics	All plans of study should meet local and state high school graduation requirements and college entrance requirements. Certain local student organization activities are also important including public speaking, record keeping and work-based experiences. A foreign language is recommended.	• Health Science I: Introduction to Health Science • Information Technology Applications	Occupations Requiring Less than Baccalaureate Degree ▶ Animal Services Technician ▶ Animal Services Technologist ▶ Data Entry Clerk ▶ Lab Assistant-Genetics ▶ Lab Technician ▶ Maintenance and Instrument Technician ▶ Process Technician ▶ Quality Assurance Technician ▶ Quality Control Technician Occupations Requiring Baccalaureate Degree ▶ Biochemist ▶ Bioinformatics Associate ▶ Bioinformatics Scientist ▶ Bioinformatics Specialist ▶ Biomedical Chemist ▶ Biostatistician ▶ Cell Biologist ▶ Clinical Trials Research Associate ▶ Clinical Trials Research Coordinator ▶ Geneticist ▶ Microbiologist ▶ Molecular Biologist ▶ Pharmaceutical Scientist ▶ Regulatory Affairs Specialist ▶ Research Assistant ▶ Research Associate ▶ Research Scientist ▶ Toxicologist
	10	English/ Language Arts II	Geometry	Chemistry	U.S. History		• Health Science II: Health, Safety and Ethics in the Health Environment	
	11	English/ Language Arts III	Algebra II	Physics or other science course	World History Sociology		• Health Science III: Employment in Health Occupations	
	College Placement Assessments-Academic/Career Advisement Provided							
	12	English/ Language Arts IV	Trigonometry Calculus	Anatomy and Physiology Physics	Psychology Economics		• Health Science IV: Introduction to Biotechnology Research and Development	
Articulation/Dual Credit Transcribed-Postsecondary courses may be taken/moved to the secondary level for articulation/dual credit purposes.								
POST SECONDARY	Year 13	English Composition	Algebra or Calculus	Anatomy and Physiology Microbiology or Molecular Biology	American Government Psychology	All plans of study need to meet learners' career goals with regard to required degrees, licenses, certifications or journey worker status. Certain local student organization activities may also be important to include. Work-based learning is an integral part of this pathway.	• Health Science V: Biotechnology Research and Development Preparation	
	Year 14	Speech/ Oral Communication Technical Writing	Statistics	Cell Biology Biochemistry Organic Chemistry	American History Sociology		• Continue Courses in the Area of Specialization	
	Year 15	Continue courses in the area of specialization.						
	Year 16						• Complete Biotechnology Research and Development Major (4-Year Degree Program)	

Common Career Technical Core

CCTC Career Ready Practices

CCTC Cluster & Pathway-Level Standards

SECONDARY & POSTSEC COURSES

Career
Exploration
Courses

Intro-Level
Courses
(Industry
Specific)

Specialized
Courses
(Industry,
Career
Specific)

Capstone
Courses
(Industry,
Career
Specific)

END OF
PROGRAM

Academic Courses, Work-based learning, etc.



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Common Career Technical Core

CCTC Career Ready Practices

CCTC Cluster & Pathway-Level Standards

WELDING

Manufacturing
Careers

Applications
in Manu. Tech;
Welding I

Welding II;
Quality
Assurance
Concepts &
Techniques

Capstone
Course;
Welding III

**END OF
PROGRAM**

Academic Courses, Work-based learning, etc.



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The College- and Career-Ready Agenda



Visit the website

Common Career Technical Core And CCTC data base

<http://www.careertech.org/career-technical-education/cctc/info.html>

Thank You!

And remember to visit

www.nyctecenter.org