Statewide CTE Programs of Study
• Highlights, Benefits, and Implementation Considerations
  ▪ Program of Study Definition
• Programs of Study Development Process
  ▪ Labor Market Analysis and Methodology
  ▪ Additional Topics for Stakeholder Feedback
• Career Cluster Groupings
• Public Comment Resources and Feedback
• Proposed Statewide Programs of Study
Every child, prepared for success in college, a career or the military.

**Strategic Priorities**

- Recruit, support and retain teachers and principals
- Build a foundation of reading and math
- Connect high school to career and college
- Improve low-performing schools

**Enablers**

- Increase transparency, fairness and rigor in district and campus academic and financial performance
- Ensure compliance, effectively implement legislation and inform policymakers
- Strengthen organizational foundations (resource efficiency, culture, capabilities, partnerships)
CCMP Strategic Plan: Theory of Action

<table>
<thead>
<tr>
<th>If we</th>
<th>If we</th>
<th>If we</th>
<th>If we</th>
<th>Then we</th>
</tr>
</thead>
<tbody>
<tr>
<td>in collaboration with our Tri-Agency partners, identify high growth, high skill, and high wage career opportunities in Texas...</td>
<td>identify pathways that prepare students for successful entry in and promotion through these careers...</td>
<td>create, support, and incentivize innovative and rigorous college and career readiness school models for these pathways...</td>
<td>provide counseling and advising for families, educators, and community partners to help students choose their desired pathway</td>
<td>will empower districts to ensure that every child is prepared for success in college, a career, or the military by connecting high school to career and college.</td>
</tr>
</tbody>
</table>
Programs of Study
Programs of study are course sequences that prepare students with the knowledge and skills necessary for success in their chosen career. These sequences embed relevant, real world experiences and culminate in a postsecondary credential.
Strong vertical linkages between secondary and postsecondary credentials offer students broader opportunities to succeed in a globally competitive workforce.

<table>
<thead>
<tr>
<th>Manufacturing Workers</th>
<th>Cybersecurity Professionals</th>
<th>Registered Nurses</th>
<th>Skilled Welders</th>
<th>Allied Health Worker</th>
<th>Software Engineering</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 million jobs currently available</td>
<td>2 million global jobs by 2019</td>
<td>1.2 million vacancies between 2014-2022</td>
<td>290,000 jobs currently available</td>
<td>2.5 million worker shortage by 2020</td>
<td>3 openings in software engineering for every 1 computer science college graduate</td>
</tr>
</tbody>
</table>

## Program of Study Elements

<table>
<thead>
<tr>
<th>Coordinated, non-duplicative sequence of academic and technical content</th>
<th>Addresses academic and technical knowledge, as well as employability skills</th>
<th>Alignment to the needs of the state, region, Tribal community, or local area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Courses that progress in content specificity</td>
<td>Multiple “entry and exit points” that allow for credentialing</td>
<td>Culminates in the attainment of a recognized postsecondary credential</td>
</tr>
</tbody>
</table>
Benefits of Programs of Study

- Provides students a career path with opportunities to continue directly into postsecondary and the workforce
- Aligns education to the regional economy building off of the diverse needs of the Texas’ economy
- Allows for better data collection and reporting of CTE concentrators for districts
- Creates stronger TEKS through recommendations for future gap analysis between course standards and job skills
- Allows for flexibility in alignment of teacher certifications to the course sequencing
Current Reporting of CTE Concentrators

- **Number of CTE concentrators continues to rise**
- **Increase in the percentage of the graduating cohort concentrating in CTE**

**Important to Note:** Current definition of a CTE concentrator allows a student to be marked as a concentrator without taking more than 2 courses. Concentrators are also identified by students who “intend” to concentrate.
Benefits of Programs of Study

- Provides students a career path with opportunities to continue directly into postsecondary and the workforce.
- Aligns education to the regional economy building off of the diverse needs of the Texas’ economy.
- Allows for better data collection and reporting of CTE concentrators for districts.
- Creates stronger TEKS through recommendations for future gap analysis between course standards and job skills.
- Allows for flexibility in alignment of teacher certifications to the course sequencing.
CTE Course Gap Analysis

Step 1
Create Job Profiles
Modernize your job analysis with Calibrate’s highly customizable Job Profiles. Utilize more than 1,000 customizable templates to get you started.

Step 2
Validate with Industry
Collect feedback and gain insights directly from Industry Experts. See which skills are most critical, what’s missing, and when skills are less relevant.

Step 3
Align Your Curriculum
Directly map curriculum to validated skill profiles based on industry needs. Calibrate eliminates lingering skill gaps so students are more employable.
Benefits of Programs of Study

- Provides students a career path with opportunities to continue directly into postsecondary and the workforce
- Aligns education to the regional economy building off of the diverse needs of the Texas’ economy
- Allows for better data collection and reporting of CTE concentrators for districts
- Creates stronger TEKS through recommendations for future gap analysis between course standards and job skills
- Allows for flexibility in alignment of teacher certifications to the course sequencing
• Perkins funds can be used to **support** statewide or approved regional programs of study
  - State CTE Funds may be used to support all CTE courses.

• The **course sequences** within each program of study will be used for federal reporting of CTE concentrators

• The new federal definition for a CTE concentrator, as outlined in Perkins V, is the **completion of two courses** (for two or more credits) within a program of study

• Proposed definition for a CTE completer to be the **completion of three or more courses for four or more credits** including one level three or level four course
**Full implementation in 2023-2024**
Course sequencing designed to align to Texas’s diverse economy
- Identified high wage, in-demand occupations in Texas
  - Triangulation of labor market information
- Grouped similar occupations into careers
- Aligned with postsecondary training for advancement in careers
• Identified high wage, in-demand occupations in Texas
  ▪ Triangulation of labor market information
    o Foundation occupations were identified utilizing median growth rate of 17%, median annual salary of $35,339, and a minimum annual openings floor of 500, each based on the data from all occupations in Texas.
    o Occupations that were related to the foundation occupations were identified to form groupings of occupations and initial focus for programs of study.
• Grouped similar occupations into programs of study
• Aligned with postsecondary training for advancement in careers
  ▪ Groupings of occupations were formed based on similarities in
detailed work activities, common postsecondary training and
education programs were identified in Bureau of Labor Statistics data
and ONET.
  ▪ These groupings of occupations were compared to the median data of
all occupations in Texas.
Labor market analysis identified several areas where occupations and postsecondary training overlap across career clusters. The areas of overlap include:

- Business, Marketing, and Finance
- Law, Public Safety, Corrections, & Security and Government & Public Administration.

The Science, Technology, Engineering, and Math (STEM) cluster did not align with any one industry sector but rather had occupations spread throughout other clusters.

A new Energy career cluster was created to address Texas’ diverse economic landscape.
Career Clusters

Color Key:
- **Blue** = No Change
- **Orange** = Combined with similar industry sector
- **Green** = New Career Cluster
- **Yellow** = Embedded throughout

**STEM:**
STEM occupations are embedded within all career clusters to expand the opportunities for students to engage in STEM related careers.
Collect stakeholder feedback to determine whether to make recommendations to the State Board of Education. TEA is soliciting feedback on following items which would require changes:

- Add the Energy Career Cluster to §TAC Chapter 130 with corresponding courses.
- Allow for additional STEM focused programs of study to qualify for the STEM endorsement.
- Allow for innovative courses to serve as the final course to earn an endorsement.
- Allow for a new Practicum in Entrepreneurship course to meet endorsements across multiple career clusters.
- Revise the list of courses which are identified for funding as advanced CTE courses.
Public Comment Period

June-July 2019

Programs of Study Revisions based on Public Comment

July-August 2019

Approval of Final Statewide Programs of Study

August 2019

Planning Year and Regional Trainings

September 2019-July 2020

Implementation Year

August 2020
Programs of Study
Public Comment Resources
Public Comment Resources

Home / Academics / College, Career, and Military Prep / Career and Technical Education

Programs of Study Public Comment

The program of study initiative is in alignment with the guidance from Perkins V. The six components of a high-quality program of study defined by Perkins were used to guide the development of the proposed programs of study. The components include:

- Coordinated, non-duplicative sequence of academic and technical content
- Courses that progress in content specificity
- Multiple entry and exit points that allow for credentialing
- Alignment to the needs of the state, region, or tribal community
- Addresses academic and technical knowledge, as well as employability skills
- Culminates in the attainment of a recognized postsecondary credential

Programs of Study Overview Webinar: MP4
Overview document of the programs of study initiative: PDF
Statewide Programs of Study At-a-Glance Spreadsheet: Excel Accessible Excel
# Programs of Study Course Sequences

- How to read the document:
  - Overview of each program of study course sequence options
  - Options within and across levels

<table>
<thead>
<tr>
<th>Endorsement</th>
<th>Career Cluster</th>
<th>Sequence</th>
<th>Level 1 Courses*</th>
<th>Level 2 Courses*</th>
<th>Level 3 Courses*</th>
<th>Level 4 Courses*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business &amp; Industry OR STEM*</td>
<td>AG</td>
<td>Animal Science</td>
<td>Principles of AFNR (13000200)</td>
<td>Small Animal Management (13000400)</td>
<td>Livestock Production/Lab (13000300 or 13000310)</td>
<td>Advanced Animal Science (13000700)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Equine Science (13000500)</td>
<td></td>
<td>Veterinary Medical Applications/Lab (13000600 or 13000610)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Scientific Research and Design (13030700)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Project-Based Research (12701500)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Practicum in Agriculture, Food, and Natural Resources (13002500 or 13002505)</td>
</tr>
</tbody>
</table>
Statewide programs of study resources have been created and include labor market information related to occupations, postsecondary options, and course sequences. Below you will find these resources organized by career cluster:

<table>
<thead>
<tr>
<th>Statewide Programs of Study Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture PDF</td>
</tr>
<tr>
<td>Education and Training PDF</td>
</tr>
<tr>
<td>Information Technology PDF</td>
</tr>
<tr>
<td>Architecture &amp; Construction PDF</td>
</tr>
<tr>
<td>Health Science PDF</td>
</tr>
<tr>
<td>Law &amp; Public Safety and Government Admin PDF</td>
</tr>
<tr>
<td>Arts, AV, Tech, &amp; Communication PDF</td>
</tr>
<tr>
<td>Hospitality &amp; Tourism PDF</td>
</tr>
<tr>
<td>Manufacturing PDF</td>
</tr>
<tr>
<td>Business, Marketing, &amp; Finance PDF</td>
</tr>
<tr>
<td>Human Services PDF</td>
</tr>
<tr>
<td>Transportation, Logistics, &amp; Distribution PDF</td>
</tr>
</tbody>
</table>

*Energy PDF* * Proposed new career cluster

*STEM occupations integrated in other career clusters

Accessible versions
AGRICULTURE, FOOD, AND NATURAL RESOURCES

- Agribusiness
- Animal Science
- Applied Agricultural Engineering
- Environmental and Natural Resources
- Food Science and Technology
- Plant Science
Flexibility in course offerings at different levels

ANIMAL SCIENCE

COURSES
- Principles of Agriculture, Food, and Natural Resources
- Small Animal Management
- Equine Science
- Livestock Production
- Advanced Animal Science
- Veterinary Medical Applications
- Practicum in Agriculture, Food, and Natural Resources
- Project-Based Research
- Scientific Research and Design
Connections to postsecondary credentials as well as wage information for related careers in Texas

### POSTSECONDARY OPTIONS

<table>
<thead>
<tr>
<th>HIGH SCHOOL/INDUSTRY CERTIFICATION</th>
<th>CERTIFICATE/LICENSE*</th>
<th>ASSOCIATE'S DEGREE</th>
<th>BACHELOR'S DEGREE</th>
<th>MASTER'S/DOCTORAL PROFESSIONAL DEGREE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Licensed Veterinary Technician</td>
<td>Pet Groomer</td>
<td>Food Science and Technology</td>
<td>Animal Sciences</td>
<td>Genetics</td>
</tr>
<tr>
<td>Feedyard Technician in Cattle Care and Handling</td>
<td>Veterinary Technician</td>
<td>Veterinary Studies</td>
<td>Agriculture</td>
<td>Veterinary Medicine</td>
</tr>
<tr>
<td>Certified Veterinary Assistant</td>
<td>Licensed Breeder</td>
<td>Biotechnology Laboratory Technician</td>
<td>Biology</td>
<td>Biological and Physical Sciences</td>
</tr>
</tbody>
</table>

Additional industry based certification information is available from the TEA CTE website.

For more information on postsecondary options for this program of study, visit TXCTE.org.

### OCCUPATIONS

<table>
<thead>
<tr>
<th>OCCUPATIONS</th>
<th>MEDIAN WAGE</th>
<th>ANNUAL OPENINGS</th>
<th>% GROWTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Animal Breeders</td>
<td>$39,135</td>
<td>28</td>
<td>9%</td>
</tr>
<tr>
<td>Animal Scientists</td>
<td>$57,533</td>
<td>22</td>
<td>12%</td>
</tr>
<tr>
<td>Medical Scientists</td>
<td>$63,888</td>
<td>435</td>
<td>27%</td>
</tr>
<tr>
<td>Veterinarians</td>
<td>$93,496</td>
<td>294</td>
<td>24%</td>
</tr>
<tr>
<td>Zoologists and Wildlife Biologists</td>
<td>$67,309</td>
<td>45</td>
<td>32%</td>
</tr>
</tbody>
</table>

### WORK BASED LEARNING AND EXPANDED LEARNING OPPORTUNITIES

- Exploration Activities: Texas FFA
- Career Prep Activities: Agri-Science Fair 4H
  - Volunteer at a local farm or veterinary office
The Animal Science program of study focuses on the science, research, and business of animals and other living organisms. It teaches students how to apply biology and life science to real-world life processes of animals and wildlife, either in laboratories or in the field, which could include a veterinary office, a farm or ranch, or any outdoor area harboring animal life. Students may also research and analyze the growth and destruction of species and research or diagnose diseases and injuries of animals.

The Agriculture, Food, and Natural Resources (AFNR) Career Cluster® focuses on the essential elements of life—food, water, land, and air. This career cluster includes a diverse spectrum of occupations, ranging from farmer, rancher, and veterinarian to geologist, land conservationist, and florist.

Successful completion of the Animal Science program of study will fulfill requirements of the Business and Industry Endorsement.
### At-a-glance scheduling information

#### COURSE INFORMATION

<table>
<thead>
<tr>
<th>COURSE NAME</th>
<th>SERVICE ID</th>
<th>PRE REQS CO REQS REQ REQS</th>
<th>GRADE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Principle of Agriculture, Food, and Natural Resources</td>
<td>13000000</td>
<td>None</td>
<td>9-12</td>
</tr>
<tr>
<td>Small Animal Management</td>
<td>13000040</td>
<td>None</td>
<td>10-12</td>
</tr>
<tr>
<td>Equine Science</td>
<td>13000050</td>
<td>None</td>
<td>10-12</td>
</tr>
<tr>
<td>Livestock Production/Lab</td>
<td>13000310</td>
<td>None</td>
<td>10-12</td>
</tr>
<tr>
<td>(1 credit) 13000310 (2 credits)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Advanced Animal Science</td>
<td>13000070</td>
<td>PREQ: Equine Science</td>
<td>11-12</td>
</tr>
<tr>
<td>Veterinary Applications/Lab</td>
<td>13000090</td>
<td>PREQ: Equine Science, Small Animal Management, or Livestock Production</td>
<td>11-12</td>
</tr>
<tr>
<td>(1 credit) 13000090 (2 credits)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Poultry in Agriculture, Food, and Natural Resources</td>
<td>13000050</td>
<td>PREQ: Livestock Production</td>
<td>11-12</td>
</tr>
<tr>
<td>(1 credit) 13000050 (2 credits)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Project Based Research</td>
<td>13010500</td>
<td>None</td>
<td>11-12</td>
</tr>
<tr>
<td>Scientific Research and Design</td>
<td>13012000</td>
<td>PREQ: Biology, Chemistry, Integrated Physics, and Chemistry (FFCO or Physics)</td>
<td>11-12</td>
</tr>
</tbody>
</table>

For additional information on the Agriculture, Food, and Natural Resources career cluster, please contact:
Amanda Brantly | Amanda.Brantly@tea.texas.gov
https://tea.texas.gov/cte
Alignment opportunities have been identified between occupational skills and course standards. In some cases, new courses need to be created in order to build course sequences to prepare students for in-demand and high wage occupations. Some existing courses do not align to identified in-demand, high wage occupations and were not included in proposed statewide programs of study. The document below highlights proposed courses and courses not included in a statewide program of study.

Programs of Study Course Alignment Recommendations: PDF

Districts may request regional programs of study with course sequences supported by regional workforce data. A regional program of study application process will be made available once the statewide programs of study list is finalized. It is recommended that the following example programs of study be made available for application.

Regional Example Programs of Study At-a-Glance: Excel File Accessible Excel

Regional Example Programs of Study Resource: PDF
Online Feedback Form

- Public Comment opens June 6th through July 19th
- Comments and feedback should be submitted through the online form located on the TEA CTE website

Stakeholders are asked to review the proposed statewide programs of study and provide comments. Stakeholder feedback will be considered prior to final recommendations.

Here you will find a link to the electronic form: Public Comment Electronic Form Link
Programs of Study by Career Cluster
Agriculture, Food, & Natural Resources

- Six Programs of Study aligned to in-demand & high-wage occupations in Texas
- STEM related occupations within Agriculture

Contact: Amanda Brantley
Amanda.Brantley@tea.Texas.gov
Architecture & Construction

- Seven Programs of Study aligned to in-demand & high-wage occupations in Texas
- Regional Program of Study Option
  - Interior Design
  - Innovative Course Request

Contact: Amanda Brantley
Amanda.Brantley@tea.Texas.gov
Arts, Audio Video Technology, & Communications

- Two Programs of Study aligned to in-demand & high-wage occupations in Texas
- Regional Program of Study option
  - Fashion Design

Contact: Laura Torres
Laura.Torres@tea.Texas.gov
Four Programs of Study aligned to in-demand & high-wage occupations in Texas
- Combined into one career cluster due to similar industries
- Flexibility of Entrepreneurship Practicum

Contact: Dale Fowler
Dale.Fowler@tea.Texas.gov
Education and Training

- Two Programs of Study aligned to in-demand & high-wage occupations in Texas
- Innovative course request

Contact: Debbie Wieland
Debbie.Wieland@tea.Texas.gov
Energy

- New Career Cluster
- Three Programs of Study aligned to in-demand & high-wage occupations in Texas
- Innovative course request

Contact: Laura Torres
Laura.Torres@tea.Texas.gov
Health Science

- Significantly expanded opportunities within Health Science
- Seven Programs of Study aligned to in-demand & high-wage occupations in Texas
- Innovative course request

Contact: Kevin Johnson
Kevin.Johnson@tea.Texas.gov
Hospitality & Tourism

- Three Programs of Study aligned to in-demand & high-wage occupations in Texas
- Innovative course request

Contact: Debbie Wieland
Debbie.Wieland@tea.Texas.gov
Human Services

- Two Programs of Study aligned to in-demand & high-wage occupations in Texas
- Regional Program of Study options
  - Barbering
  - Cosmetology

Contact: Debbie Wieland
Debbie.Wieland@tea.Texas.gov
Information Technology

- Five Programs of Study aligned to in-demand & high-wage occupations in Texas
- Innovative course request
- Incorporation of Tech Apps

Contact: Laura Torres
Laura.Torres@tea.Texas.gov
Four Programs of Study aligned to in-demand & high-wage occupations in Texas

Combined into one career cluster due to similar industries

Innovative course request

Contact: Dale Fowler
Dale.Fowler@tea.Texas.gov
Four Programs of Study aligned to in-demand & high-wage occupations in Texas

STEM related occupations within Manufacturing

Contact: Amanda Brantley
Amanda.Brantley@tea.Texas.gov
Transportation, Distribution, and Logistics

- Four Programs of Study aligned to in-demand & high-wage occupations in Texas
- Regional Program of Study options
  - Flight
  - Maritime
- Innovative course request

Contact: Kevin Johnson
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Ryan Merritt
Director, Career & Technical Education
Texas Education Agency
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ryan.merritt@tea.texas.gov