The "Y" of LMI   2.0

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PLEASE KEEP ALL:
Hands, Feet, Arms, and Legs
Inside the ride at all times…
Until we have come to a complete stop!!

Agenda

"Y" does LMI matter?

Labor Market Information (data)

- We will cover a high-level overview of ESSENTIAL LMI data
- Demand (jobs)
- Supply (completers)

Uses of LMI

- Racial Equity
  - Economic progress/ development
    - Employment
      - Jobs

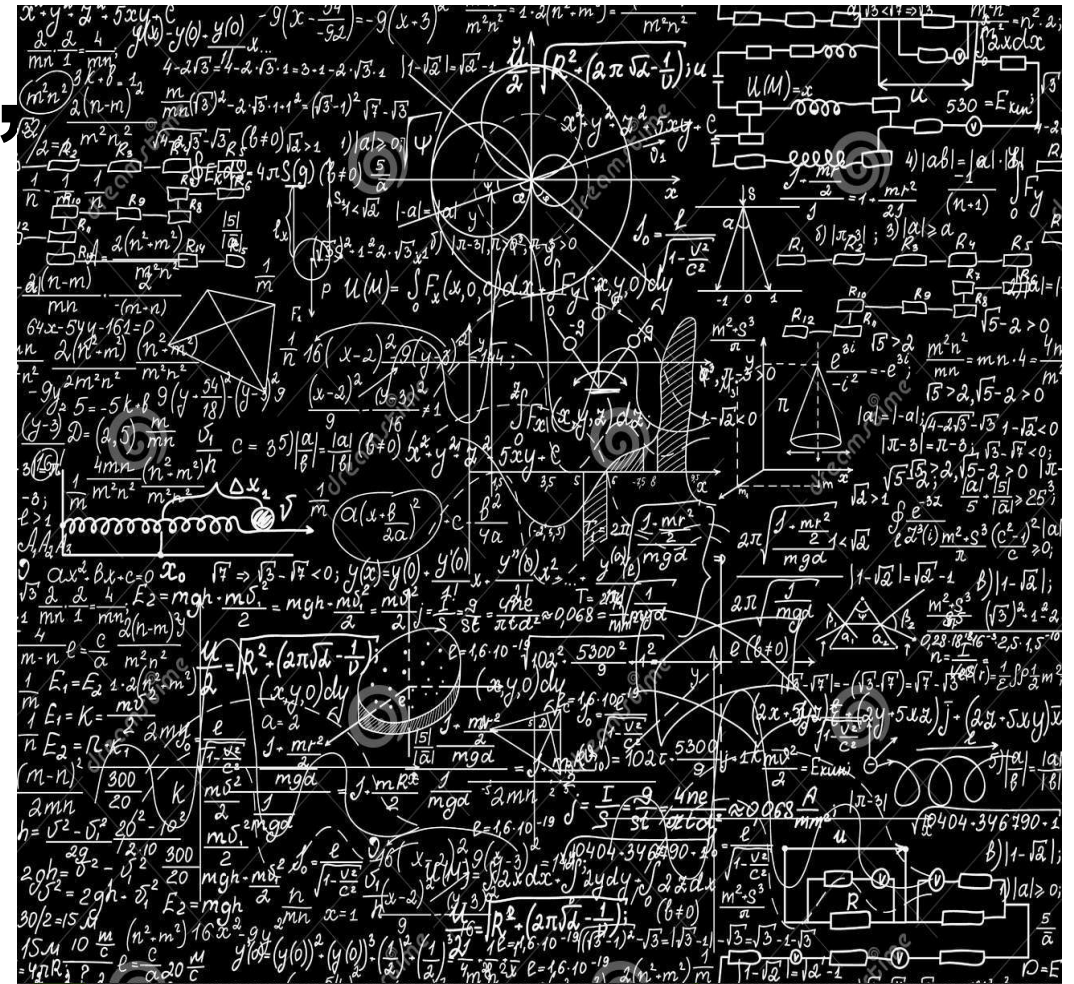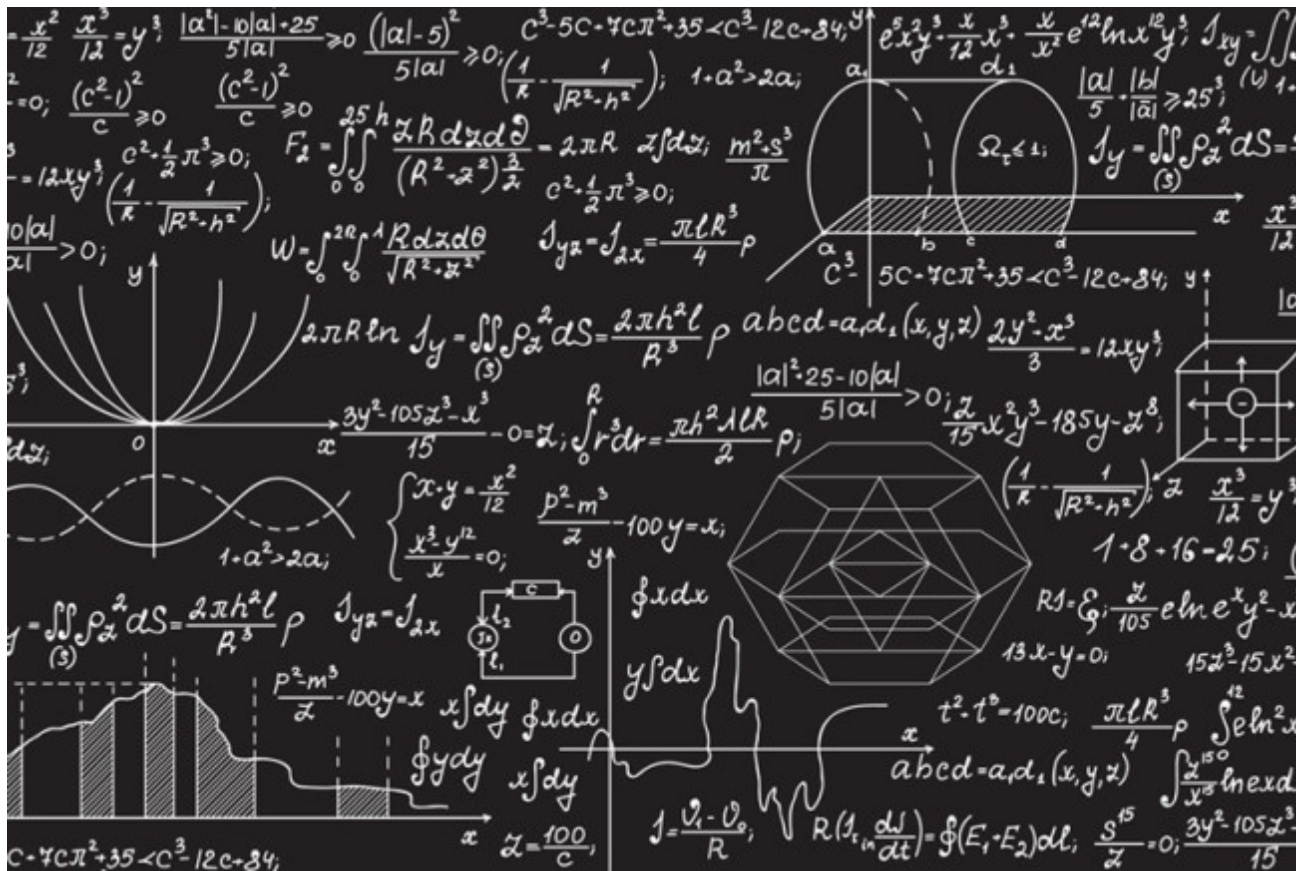## Career Counseling/ Advising/ Guidance

Questions?

Outcomes

1. Define high-level Labor Market Information data elements

2. Identify resources to obtain needed data

3. Define the nexus between Labor Market Information and student outcomes
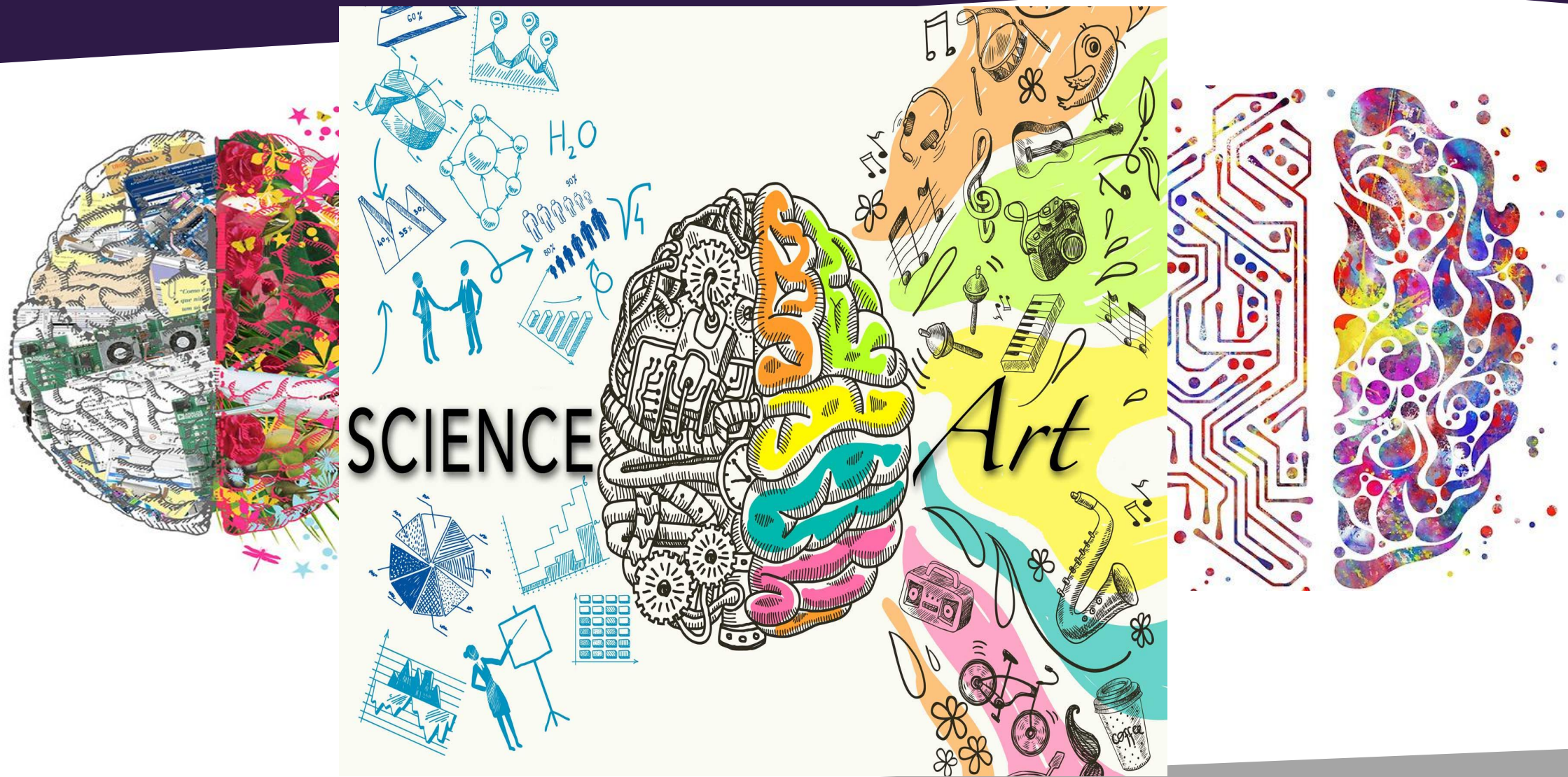
LMI
"What does it mean?"

https://www.discovermagazine.com/the-sciences/5-obscure-formulas-that-rule-the-world
https://www.dreamstime.com/stock-illustration-mathematical-vector-seamless-pattern-mathematical-figures-formulas-equations-shuffled-together-you-can-use-any-color-image79991220

The science and art of LMI

The reason "Y"

Why does labor market information matter to higher ed

Y does LMI matter

"it's the economy, stupid"

Y does LMI matter

"They Said So" *(federal and state funding and reporting)*

The Workforce Innovation and Opportunity Act (WIOA) calls for labor market information to be used to:

❑ Ensure that programming and training are aligned with in-demand occupations and industries;

❑ Incorporate state and local workforce and economic information into strategic planning documents; and

❑ Embed state and local workforce and economic information in program and system evaluation efforts

https://www.lmiontheweb.org/what-we-do/the-national-lmi-infrastructure/

Y does LMI matter – Equity "working poor"

Share of workers earning at least $15/hour by race/ethnicity: Austin-Round Rock, TX; 1980–2017

White   People of color
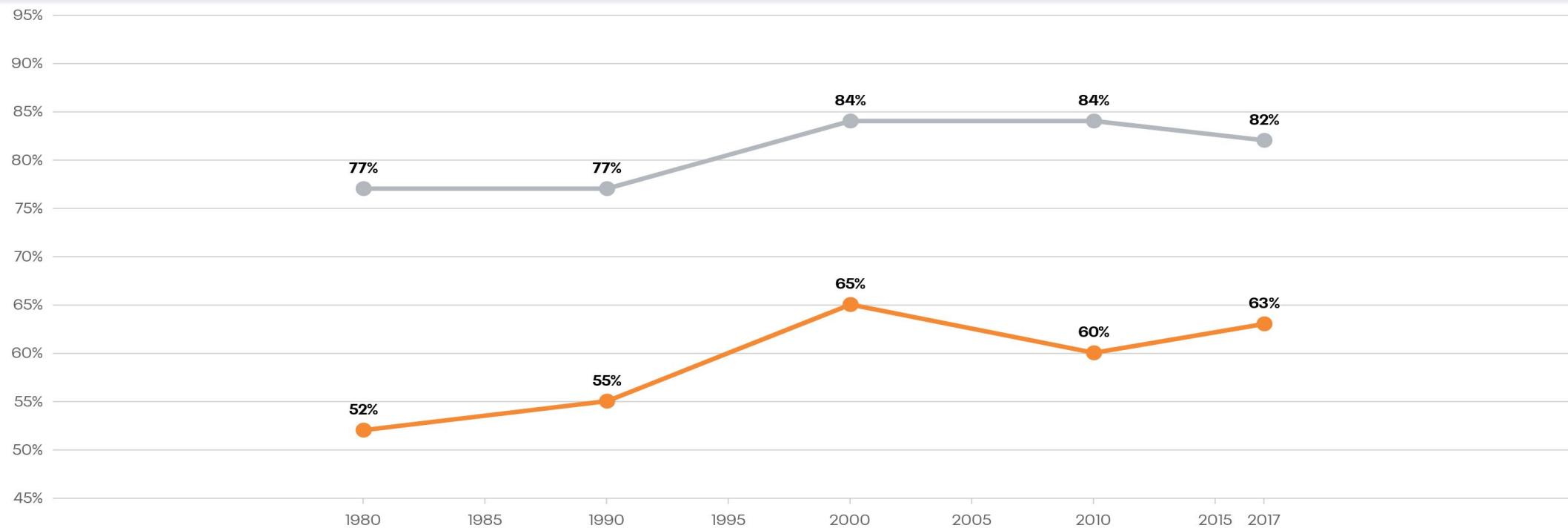
Data source: IPUMS USA | National Equity Atlas

Y does LMI matter - Students

- Many reasons exist, but the primary and most essential reason to use LMI for data driven decisions and progress is our **STUDENTS**.

What is LMI?

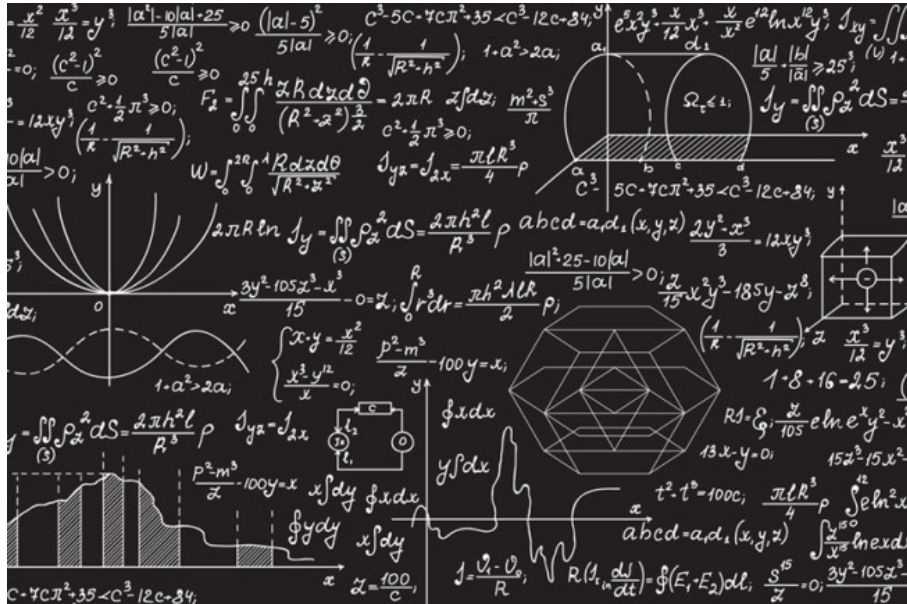## Labor Market Information

Labor market (job market) information tells you about the current work and job environments in specific regions.

It includes information about specific companies, industries and occupations.

Regional snapot updated 3rd Friday of month

Reality of LMI in the simplest form

Supply $^{(CIP)}$
And
emand $^{(SOC)}$

Equilibrium:
$$Q_d = Q_s$$
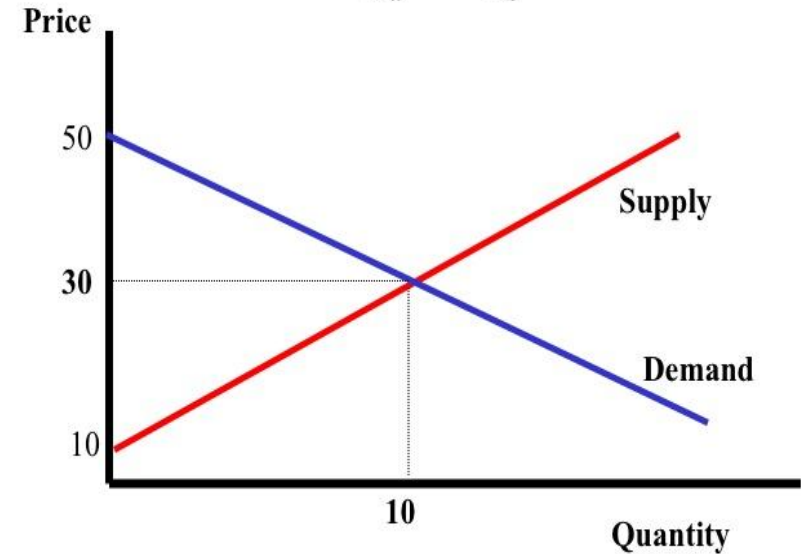
LMI at the high-level

- The foundational data of LMI is grounded in data from the Bureau of Labor Statics (BLS), Census, Department of Labor(DOL), Department of Education(DOE), and many more agencies and organizations

- The data is primarily reported via
  - CIP codes (Classification of Instructional Programs)
  - SOC codes (Standard Occupational Codes)
  - NAICS codes (North American Industry Classification System) *[SIC codes (Standard Industrial Classification)]*, and
  - Career Clusters and Pathways[Perkins]

LMI suppression (BLS)

- The BLS suppresses as much as 60% of county-level industry employment and wage data.

Special issues with data

- As with all data, there has to be some that cause issues.

- The "Postsecondary Teachers" is just one such data point.

- The data is restricted and not really "usable"

- The BLS data is highly suppressed at the metro level for these categories.

Occupation Overview   Add to My Reports   Export ▾

Postsecondary Teachers in ACC Service Area (counties) ▲ Details

Postsecondary Teachers (SOC 25-1099):
Aggregate category equivalent to SOC group 25-1000. Teach undergraduate and graduate level courses in their specialized field of study. Inclu[des] both teachers primarily engaged in teaching and those who do a combination of both teaching and research. Alternate titles: College Professor.

Related O*NET Occupations:
- Business Teachers, Postsecondary (25-1011.00)
- Mathematical Science Teachers, Postsecondary (25-1022.00)
- Engineering Teachers, Postsecondary (25-1032.00)
- Biological Science Teachers, Postsecondary (25-1042.00)
- Atmospheric, Earth, Marine, and Space Sciences Teachers, Postsecondary (25-1051.00)
- Physics Teachers, Postsecondary (25-1054.00)
- Area, Ethnic, and Cultural Studies Teachers, Postsecondary (25-1062.00)
- Political Science Teachers, Postsecondary (25-1065.00)
- Sociology Teachers, Postsecondary (25-1067.00)
- Nursing Instructors and Teachers, Postsecondary (25-1072.00)
- Library Science Teachers, Postsecondary (25-1082.00)
- Law Teachers, Postsecondary (25-1112.00)
- Art, Drama, and Music Teachers, Postsecondary (25-1121.00)
- English Language and Literature Teachers, Postsecondary (25-1123.00)
- History Teachers, Postsecondary (25-1125.00)
- Graduate Teaching Assistants (25-1191.00)
- Recreation and Fitness Studies Teachers, Postsecondary (25-1193.00)

- Computer Science Teachers, Postsecondary (25-1021.00)
- Architecture Teachers, Postsecondary (25-1031.00)
- Agricultural Sciences Teachers, Postsecondary (25-1041.00)
- Forestry and Conservation Science Teachers, Postsecondary (25-1043.00)
- Chemistry Teachers, Postsecondary (25-1052.00)
- Environmental Science Teachers, Postsecondary (25-1053.00)
- Anthropology and Archeology Teachers, Postsecondary (25-1061.00)
- Economics Teachers, Postsecondary (25-1063.00)
- Geography Teachers, Postsecondary (25-1064.00)
- Psychology Teachers, Postsecondary (25-1066.00)
- Health Specialties Teachers, Postsecondary (25-1071.00)
- Education Teachers, Postsecondary (25-1081.00)
- Criminal Justice and Law Enforcement Teachers, Postsecondary (25-1111.00)
- Social Work Teachers, Postsecondary (25-1113.00)
- Communications Teachers, Postsecondary (25-1122.00)
- Foreign Language and Literature Teachers, Postsecondary (25-1124.00)
- Philosophy and Religion Teachers, Postsecondary (25-1126.00)
- Home Economics Teachers, Postsecondary (25-1192.00)
- Vocational Education Teachers, Postsecondary (25-1194.00)

https://kb.emsidata.com/faq/why-doesnt-emsi-break-out-the-postsecondary-teachers-soc/

LMI Data Access and Delivery Mechanisms

LMI can be provided through a variety of techniques.

 Reports

 Web sites

 Interactive web tools, including GIS/data mapping and web services

 Presentations and press releases

 Newsletters and email updates

 User training

 Special data tabulations by request

 Special topic studies and survey results

 Customized consultations and advisory services

LMI – "Who Does What"
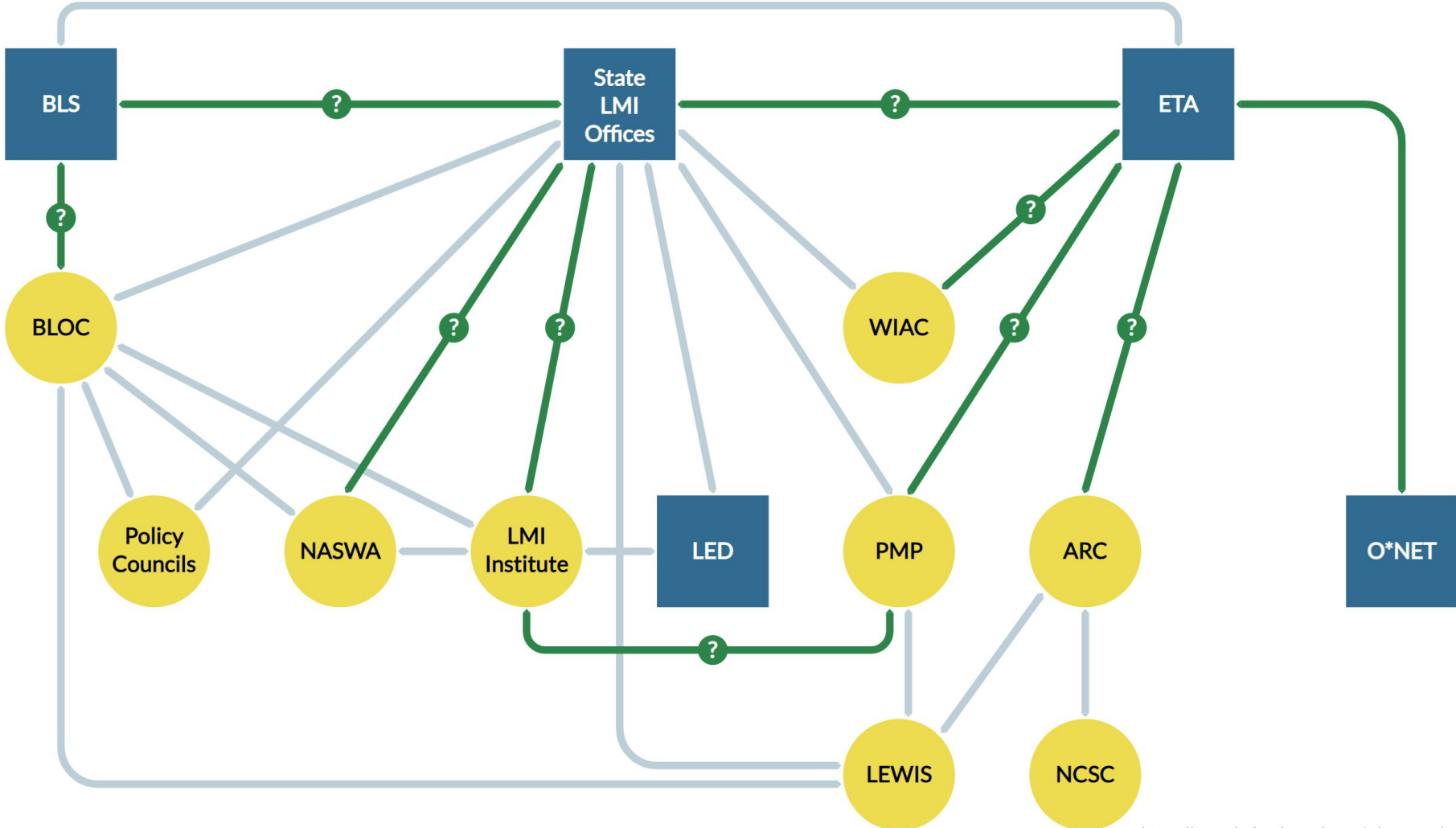
LMI – "Who Does What When"

Public and Private Sources of Education and Workforce Data

Ken Poole, LMI Institute, and Andrew Reamer, Geo. Washington Univ.

October 8, 2014

	Geography							Personal or Job Characteristics							
	National	State	Metro	Labor Market Area	County	City	Neighbor-hood	Labor Force Status	Educational Attainment		Work Experience	Occupation	Industry	Work Earnings
									Degree	Non-degree				
Households and People														
American Community Survey (ACS)	✓	✓	✓		✓	✓	✓	✓	✓			✓	✓	✓
Current Population Survey (CPS)--monthly	✓	3 yr-avg						✓	✓	2015		✓	✓	✓
Current Population Survey (CPS)--Annual Social and Economic Supplement (ASEC)	✓	✓						✓	✓	2015		✓	✓	✓
Credentials for Work Survey (CWS), National Household Education Surveys (NHES) Program	✓							✓	✓	✓		✓	✓	✓
Training for Work Survey (TWS), National Household Education Surveys (NHES) Program	✓							✓	✓	✓		✓	✓	✓
Local Area Unemployment Statistics (LAUS)	✓	✓	✓		✓	✓		✓						
Longitudinal Employer-Household Dynamics (LEHD)		✓	✓	✓	✓	✓	✓	✓	✓				✓	✓

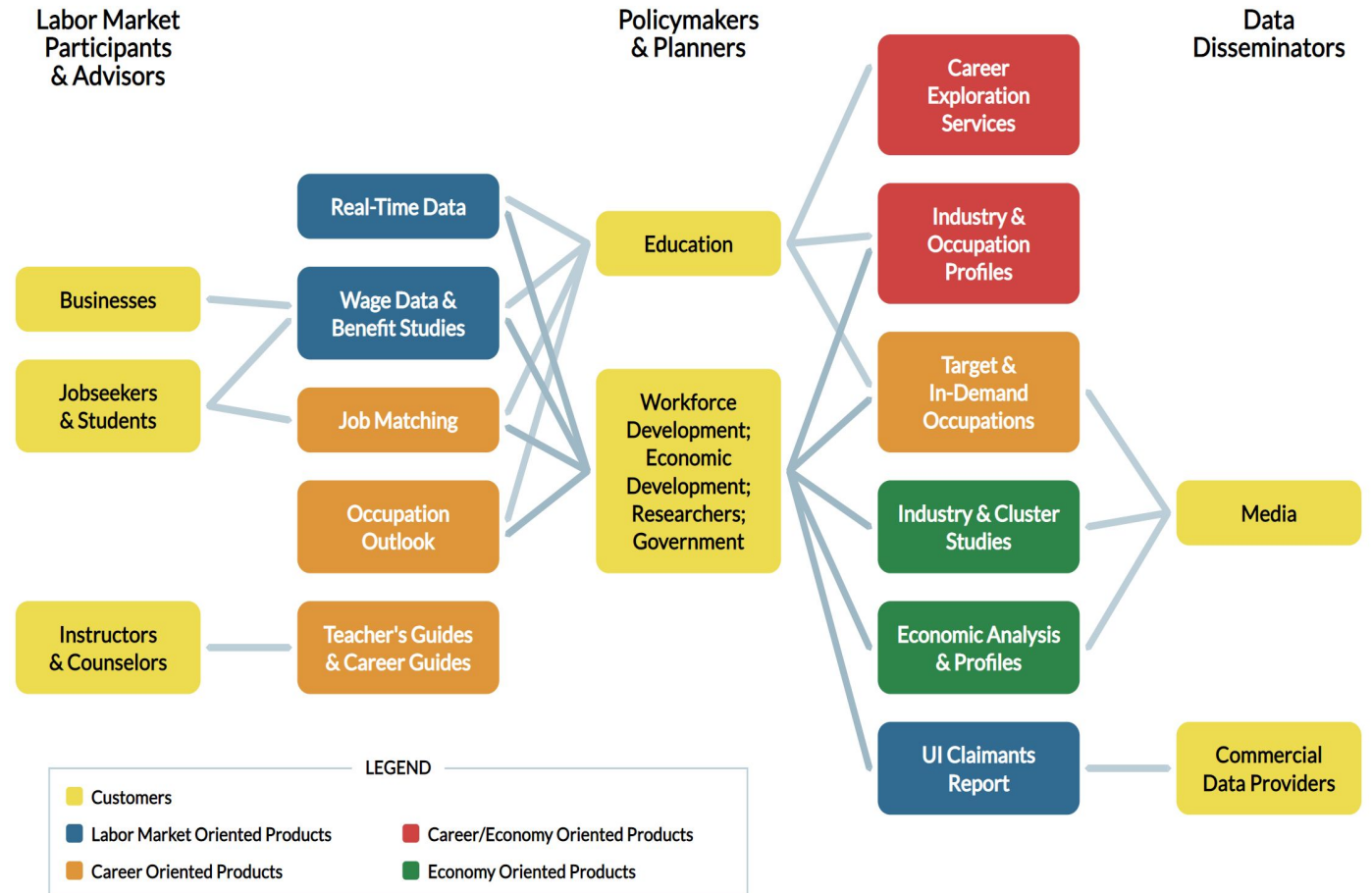# Users of LMI

- Labor Market Participants and Advisers
  - Jobseekers and Students
  - Businesses
  - Education and Training Instructors
  - Counselors

- Policymakers and Planners
  - Elected Officials
  - Workforce Development
  - Economic Development
  - Education
  - Social services
  - Researchers
  - Federal, State, and Local Governments
  - Internal Customers

- Value-Added Disseminators

Labor Market Information (LMI) Use in Higher Ed.

- The data can be used to:

  - **Program Portfolio Management**:

    - What programs to Start, Sustain, Grow, Stop

  - **Program Portfolio Development**

    - Decide which college programs to offer and how many graduates a college should aim to produce to fill available jobs related to the program.

  - **Program Portfolio Assessment**

    - Assess program effectiveness, signaling whether a college's programs provide the necessary skills, both in terms of specific competencies and appropriate rigor, for students to succeed after they graduate.

  - **Student Services/ Career Services**

    - Help students make informed choices about which programs to enter, both by accelerating student decision-making and thereby increase chances for graduation and by enhancing the likelihood they will choose a degree aligned to a well-paid, available job.

Funding

WIOA - ETPL - TOL

Regardless of the level of reporting or engagement, ALL the following are funded on basis of Occupational assignment [SOC codes] and alignment.

- **WIOA- WIOA** is landmark legislation that is designed to strengthen and improve our nation's public workforce system and help get Americans, including youth and those with significant barriers to employment, into high-quality jobs and careers and help employers hire and retain skilled workers. [https://www.dol.gov/agencies/eta/wioa]

- **ETPL - Eligible Training Providers List Eligible** - Training Providers (ETPs) are entities with job training programs approved by the Texas Workforce Commission (TWC) to provide Workforce Innovation and Opportunity Act (WIOA)–funded training services. Local Workforce Development Boards (Boards) fund training for Adult and Dislocated Worker program participants primarily through Individual Training Accounts (ITAs). The publicly accessible Statewide Eligible Training Providers List (ETPL) includes all programs that are currently approved by TWC for ITA funding. The Statewide ETPL Performance Report includes data related to student enrollment for approved programs from July 1, 2018, through June 30, 2020. [https://www.twc.texas.gov/partners/eligible-training-providers]

- **TOL – Target Occupation List -** The Texas workforce system is charged with developing strategies to target high-growth, high-demand and emerging occupations that are critical to the state and local economies. Commonly referred to as "Target Occupations," these lists of occupations are determined by Workforce Development Boards (Boards) based on a number of economic indicators and local wisdom and are used to guide workforce customers into aptitude-appropriate and economically relevant occupational training. Key economic data about occupations and in-demand industries along with information about labor market trends and economic conditions, enable individuals and employers to make informed decisions. [https://www.twc.texas.gov/partners/target-occupations]

A bit deeper into LMI

Labor Force
Unemployment
CIP
SOC
NAICS
Skills
Migration patterns

The Labor Force

Labor Force flow chart
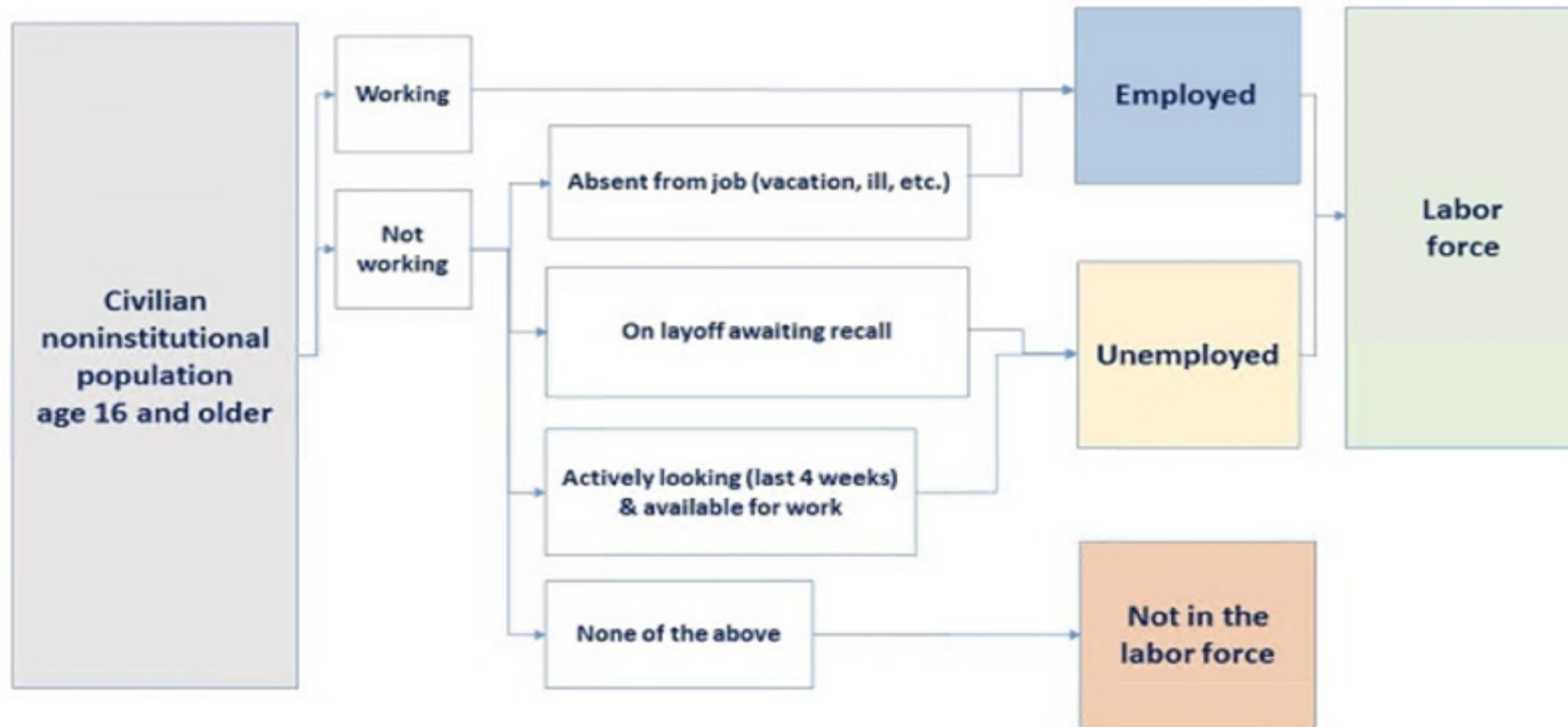
Unemployment

Unemployed Flow Chart

https://www.bls.gov/news.release/empsit.t15.htm
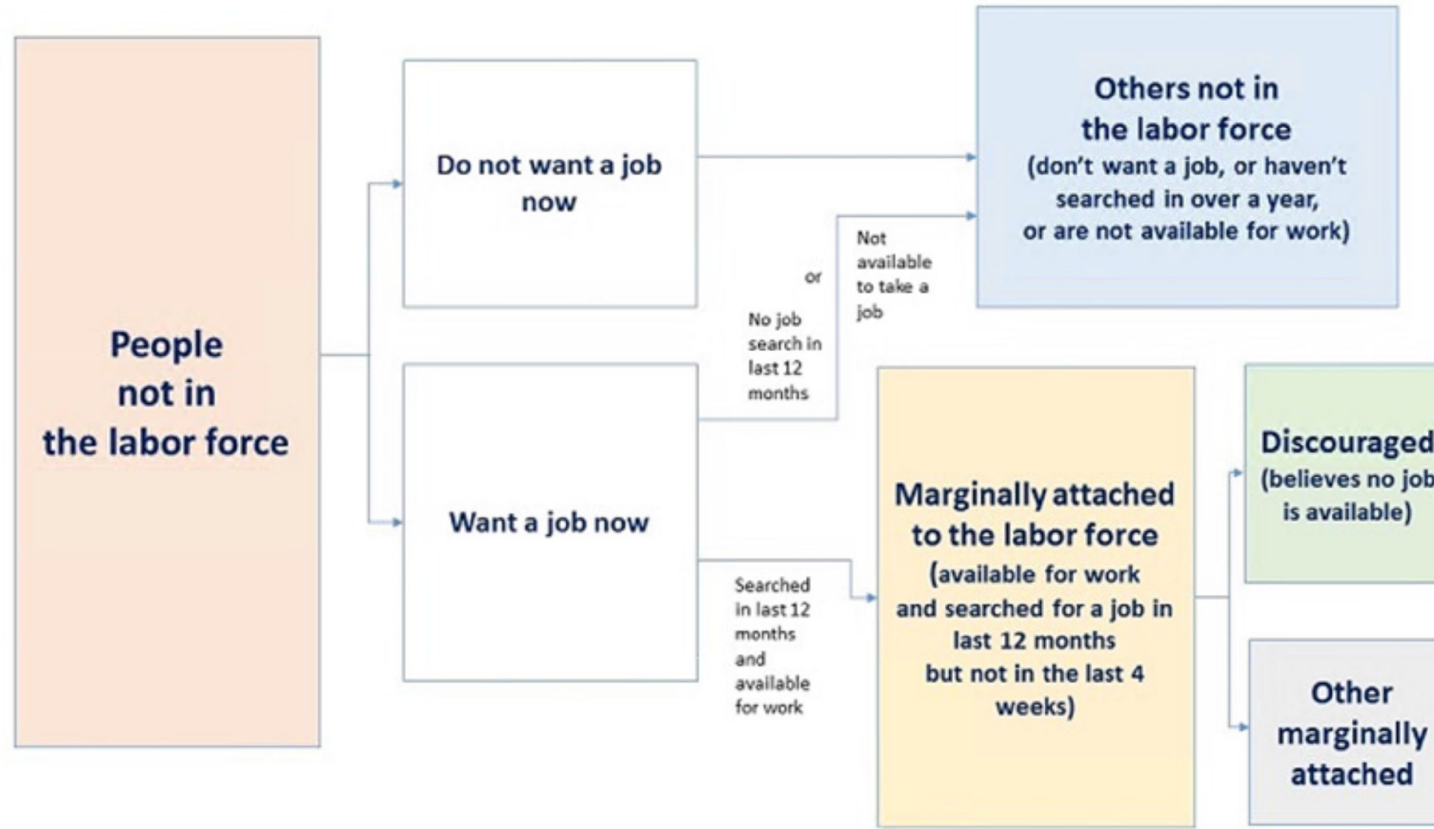
Unemployment
6 Categories of UE

Table A-15. Alternative measures of labor underutilization

[Percent]

Measure	Not seasonally adjusted			Seasonally adjusted					
	Jan. 2020	Dec. 2020	Jan. 2021	Jan. 2020	Sept. 2020	Oct. 2020	Nov. 2020	Dec. 2020	Jan. 2021
U-1 Persons unemployed 15 weeks or longer, as a percent of the civilian labor force	1.3	3.4	3.4	1.2	4.6	3.8	3.6	3.4	3.4
U-2 Job losers and persons who completed temporary jobs, as a percent of the civilian labor force	2.0	4.5	4.8	1.6	5.6	4.8	4.7	4.5	4.4
U-3 Total unemployed, as a percent of the civilian labor force (official unemployment rate)	4.0	6.5	6.8	3.5	7.8	6.9	6.7	6.7	6.3
U-4 Total unemployed plus discouraged workers, as a percent of the civilian labor force plus discouraged workers	4.2	6.9	7.2	3.7	8.2	7.2	7.1	7.1	6.7
U-5 Total unemployed, plus discouraged workers, plus all other persons marginally attached to the labor force, as a percent of the civilian labor force plus all persons marginally attached to the labor force	4.8	7.8	8.0	4.3	8.9	8.0	7.9	7.9	7.4
U-6 Total unemployed, plus all persons marginally attached to the labor force, plus total employed part time for economic reasons, as a percent of the civilian labor force plus all persons marginally attached to the labor force	7.7	11.6	12.0	6.9	12.8	12.1	12.0	11.7	11.1

NOTE: Persons marginally attached to the labor force are those who currently are neither working nor looking for work but indicate that they want and are available for a job and have looked for work sometime in the past 12 months. Discouraged workers, a subset of the marginally attached, have given a job-market related reason for not currently looking for work. Persons employed part time for economic reasons are those who want and are available for full-time work but have had to settle for a part-time schedule. Updated population controls are introduced annually with the release of January data.

https://www.bls.gov/news.release/empsit.t15.htm

Unemployment U-3
Initial Claims / Continued Claims

Texas Unemployment Post COVID-19 declaration

Initial Claims (BLS), Continued Claims (BLS) and Initial Claims (TWC)

■ Initial Claims (BLS)   ■ Continued Claims (BLS)   ■ Initial Claims (TWC)

1,500,000

1,000,000

500,000

0

4/1/2020   7/1/2020   10/1/2020   1/1/2021

Filed week ended
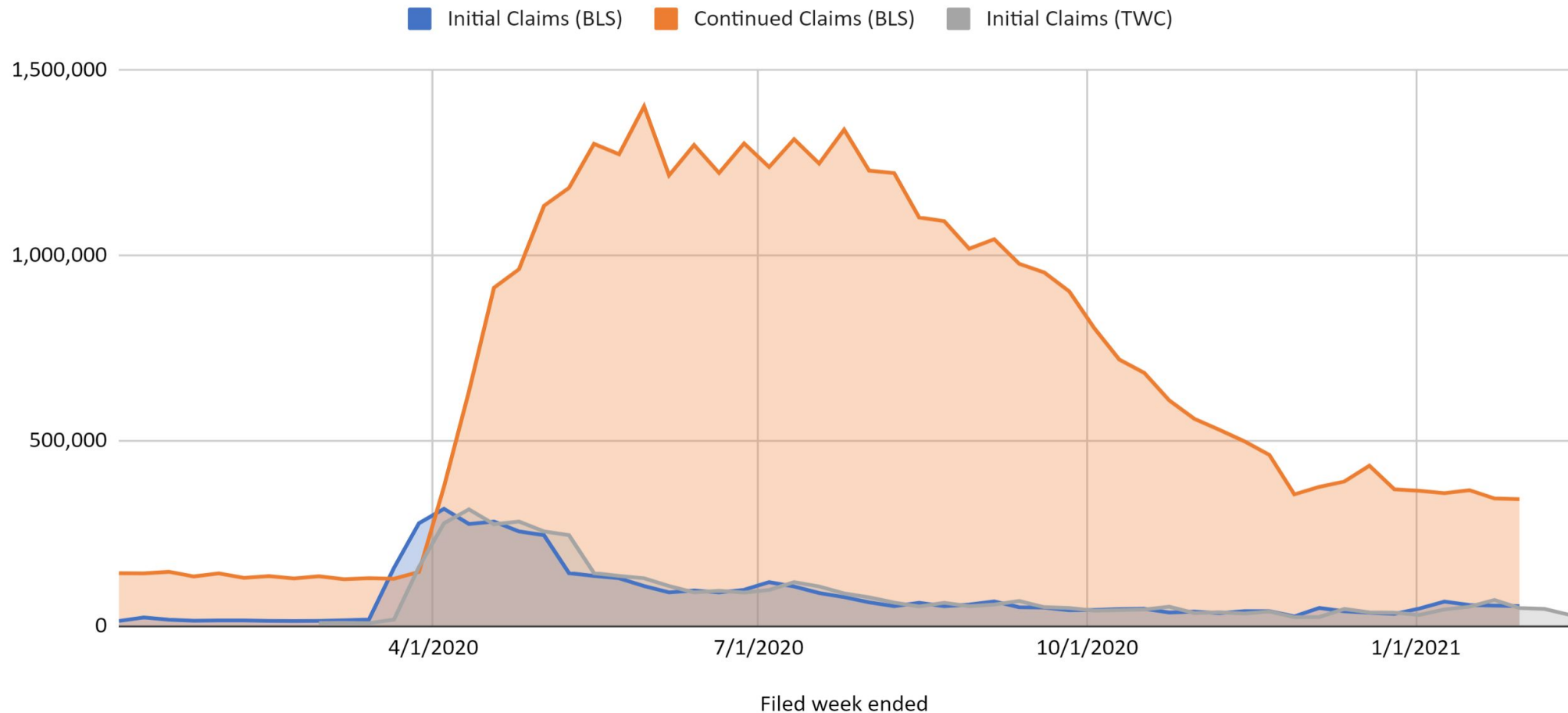
Unemployment U-3 Texas MSA comparison

Texas MSA's May Unemployment Rates
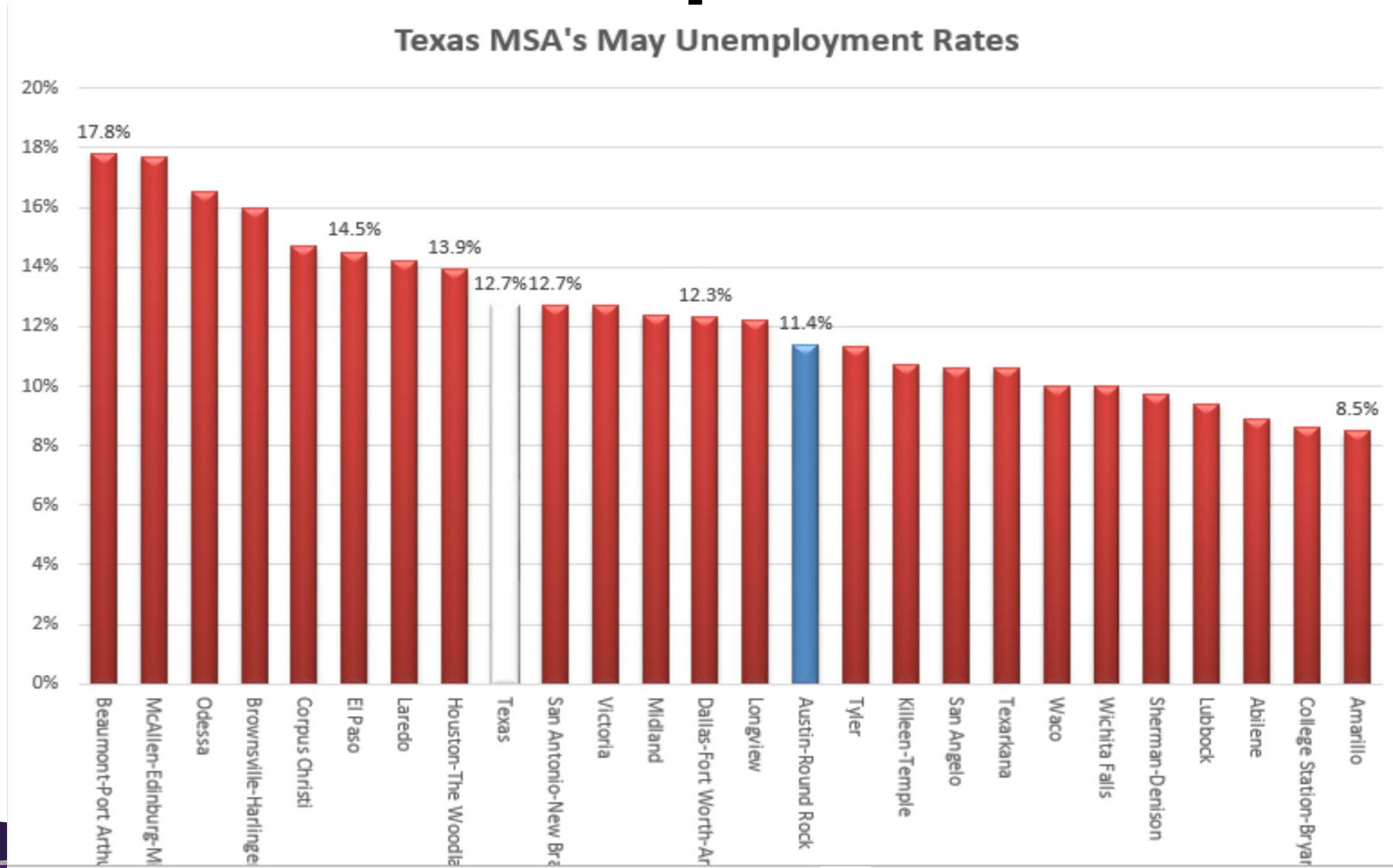
Unemployment U-3 Williamson, Travis/ Hays

UE BY COUNTY (ACC TAXING DISTRICT) SINCE COVID-19
3/14/2020
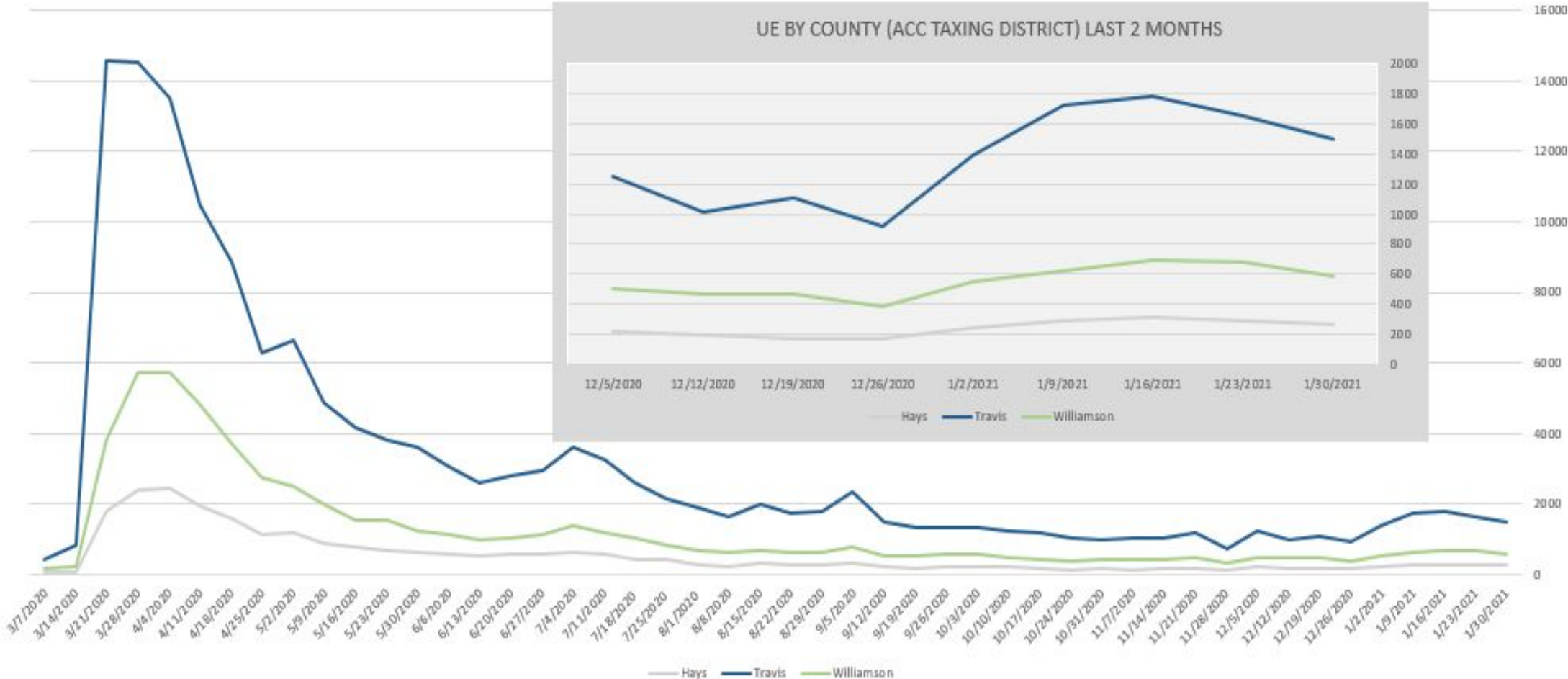
UE BY COUNTY (ACC TAXING DISTRICT) LAST 2 MONTHS

Unemployment U-3 Travis County local industry analysis

UE Claims by Sector 10/31/2020 - 1/30/2021

Construction [DMCAT] — Health Care and Social Assistance [HESCI] — Information [COSIS] — Manufacturing [DMCAT]
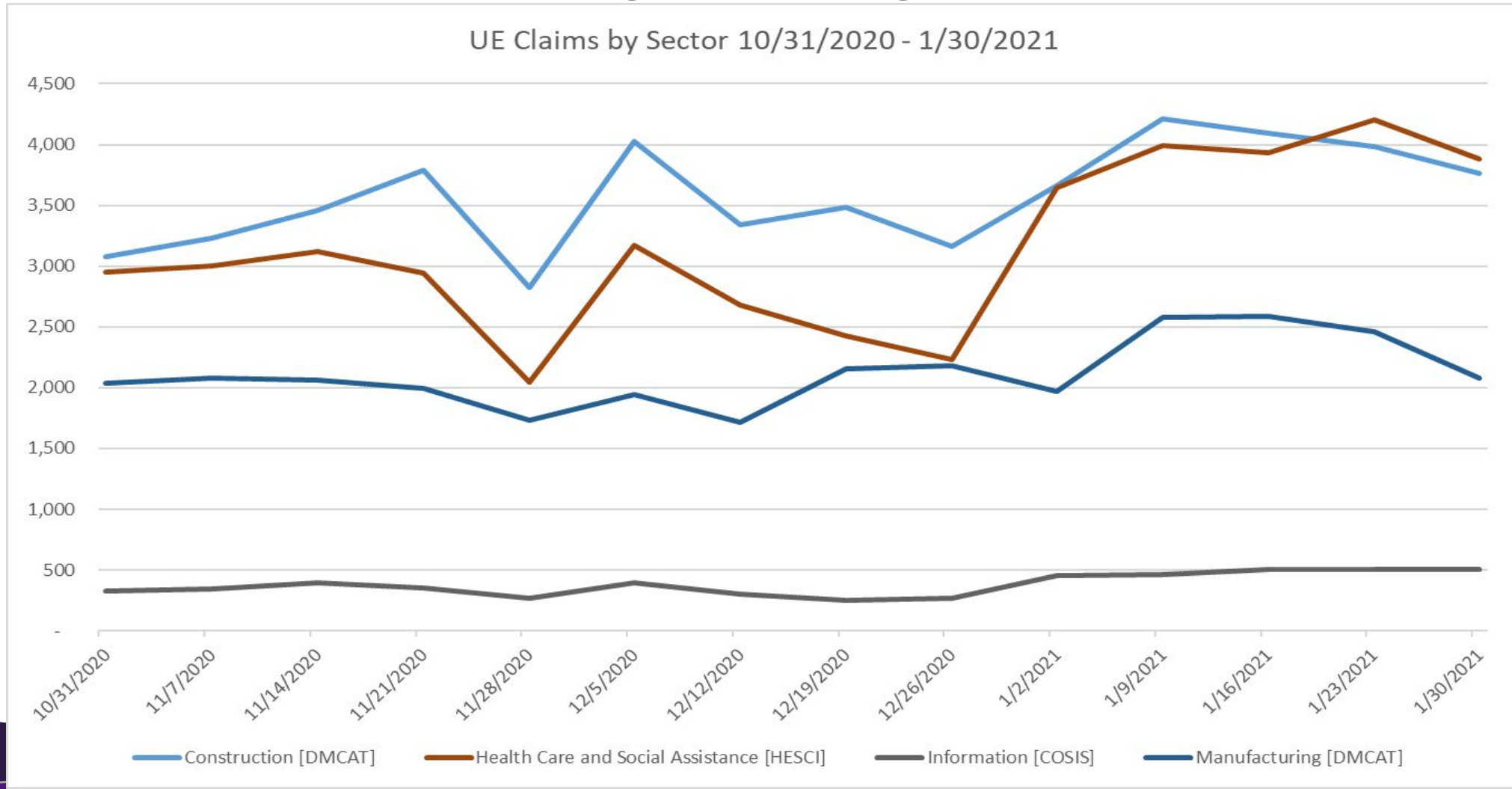
CIP-SOC-NAICS codes

CIP - **Program**

SOC - **Occupation**

NAICS - **Industry**

CIP codes

CIP codes – 2010 - 2020

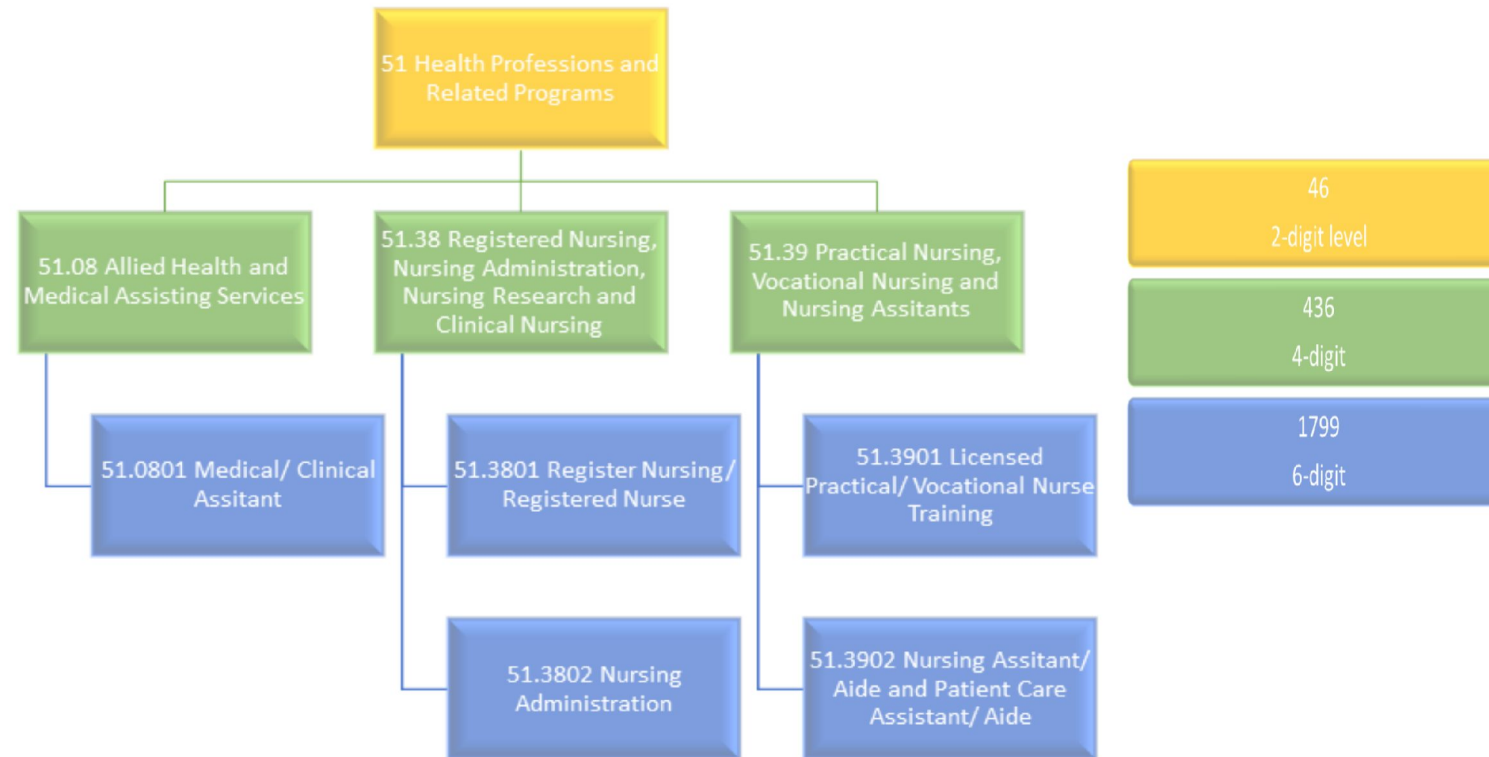| CIPCode 2010	CIPTitle2010	Action	Text change	CIPCode 2020	CIPTitle2020
01	AGRICULTURE, AGRICULTURE OPERATIONS, AND RELATED SCIENCES.	No substantive changes	yes	01	AGRICULTURAL/ANIMAL/PLANT/VETERINARY SCIENCE AND RELATED FIELDS.
01.00	Agriculture, General.	No substantive changes	no	01.00	Agriculture, General.
01.0000	Agriculture, General.	No substantive changes	no	01.0000	Agriculture, General.
01.01	Agricultural Business and Management.	No substantive changes	no	01.01	Agricultural Business and Management.
01.0101	Agricultural Business and Management, General.	No substantive changes	no	01.0101	Agricultural Business and Management, General.
01.0102	Agribusiness/Agricultural Business Operations.	No substantive changes	no	01.0102	Agribusiness/Agricultural Business Operations.
01.0103	Agricultural Economics.	No substantive changes	no	01.0103	Agricultural Economics.
01.0104	Farm/Farm and Ranch Management.	No substantive changes	no	01.0104	Farm/Farm and Ranch Management.
01.0105	Agricultural/Farm Supplies Retailing and Wholesaling.	No substantive changes	no	01.0105	Agricultural/Farm Supplies Retailing and Wholesaling.
01.0106	Agricultural Business Technology.	No substantive changes	yes	01.0106	Agricultural Business Technology/Technician.
01.0199	Agricultural Business and Management, Other.	No substantive changes	no	01.0199	Agricultural Business and Management, Other.
01.02	Agricultural Mechanization.	No substantive changes	no	01.02	Agricultural Mechanization.
01.0201	Agricultural Mechanization, General.	No substantive changes	no	01.0201	Agricultural Mechanization, General.
01.0204	Agricultural Power Machinery Operation.	No substantive changes	no	01.0204	Agricultural Power Machinery Operation.
01.0205	Agricultural Mechanics and Equipment/Machine Technology.	No substantive changes	yes	01.0205	Agricultural Mechanics and Equipment/Machine Technology/Technician.
		New	no	01.0207	Irrigation Management Technology/Technician.
01.0299	Agricultural Mechanization, Other.	No substantive changes	no	01.0299	Agricultural Mechanization, Other.
01.03	Agricultural Production Operations.	No substantive changes	no	01.03	Agricultural Production Operations.
01.0301	Agricultural Production Operations, General.	No substantive changes	no	01.0301	Agricultural Production Operations, General.
01.0302	Animal/Livestock Husbandry and Production.	No substantive changes	no	01.0302	Animal/Livestock Husbandry and Production.
01.0303	Aquaculture.	No substantive changes	no	01.0303	Aquaculture.
01.0304	Crop Production.	No substantive changes	no	01.0304	Crop Production.
01.0306	Dairy Husbandry and Production.	No substantive changes	no	01.0306	Dairy Husbandry and Production.
01.0307	Horse Husbandry/Equine Science and Management.	No substantive changes	no	01.0307	Horse Husbandry/Equine Science and Management.
01.0308	Agroecology and Sustainable Agriculture.	No substantive changes	no	01.0308	Agroecology and Sustainable Agriculture.
01.0309	Viticulture and Enology.	Moved to	no	01.1004	Viticulture and Enology.

CIP code structure

CIP CODE (NCES-2020) (NCES formatted 6-digit)	CIP Title (NCES-2020)
1	AGRICULTURAL/ANIMAL/PLANT/VETERINARY SCIENCE AND RELATED FIELDS.
1.00	Agriculture, General
1.0000	Agriculture, General
1.01	Agricultural Business and Management
1.0101	Agricultural Business and Management, General
1.0102	Agribusiness/Agricultural Business Operations
1.0103	Agricultural Economics
1.0104	Farm/Farm and Ranch Management
1.0105	Agricultural/Farm Supplies Retailing and Wholesaling
1.0106	Agricultural Business Technology/Technician.
1.02	Agricultural Mechanization
1.0201	Agricultural Mechanization, General
1.0204	Agricultural Power Machinery Operation
1.0205	Agricultural Mechanics and Equipment/Machine Technology/Technician
1.0207	Irrigation Management Technology/Technician
1.03	Agricultural Production Operations
1.0301	Agricultural Production Operations, General

CIP Codes

Classification of Instructional Programs (CIP) codes

CIP codes are subdivided in a hierarchical, three-level structure.
The highest is 2-digit, then 4-digit (more detailed), lastly 6-digit (most detailed)

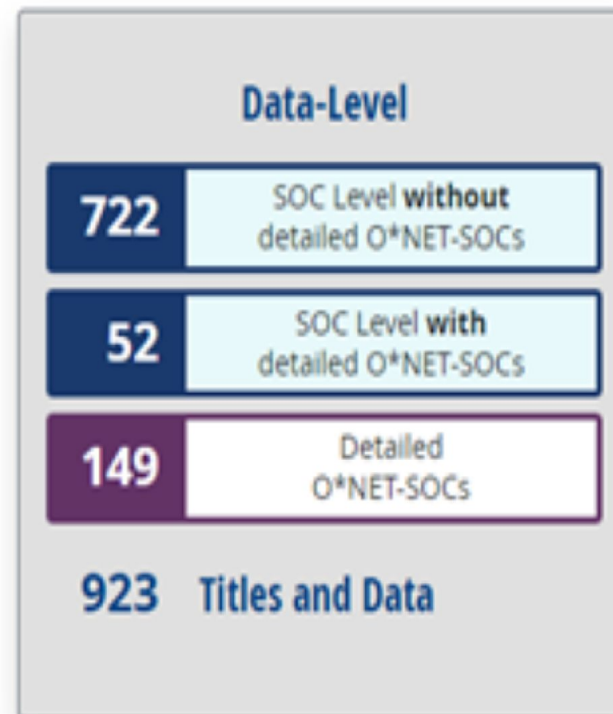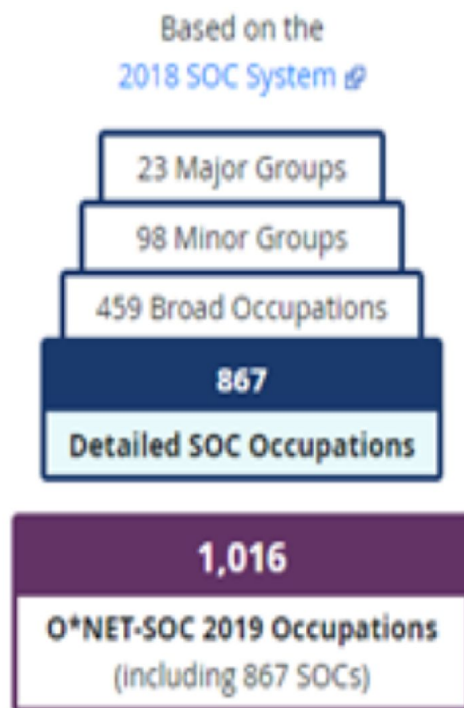*NOTE: the THECB uses and 8-digit by adding the funding code on the end of each*

51 Health Professions and Related Programs

51.08 Allied Health and Medical Assisting Services

51.38 Registered Nursing, Nursing Administration, Nursing Research and Clinical Nursing

51.39 Practical Nursing, Vocational Nursing and Nursing Assitants

51.0801 Medical/ Clinical Assitant

51.3801 Register Nursing/ Registered Nurse

51.3802 Nursing Administration

51.3901 Licensed Practical/ Vocational Nurse Training

51.3902 Nursing Assitant/ Aide and Patient Care Assistant/ Aide

46
2-digit level

436
4-digit

1799
6-digit

https://nces.ed.gov/ipeds/cipcode/Default.aspx?y=56

https://nces.ed.gov/ipeds/cipcode/browse.aspx?y=56

SOC codes

Occupations - SOC CODES

Standard Occupational Classification (SOC) codes

SOC CODES Structure

Major Group [OCCUPATION FAMILY]	Minor Group	Broad Group	Detailed Occupation	Title
				U.S. Bureau of Labor Statistics
				On behalf of the Office of Management and Budget (OMB) and the Standard Occupational Classification Policy Committee (SOCPC)
				November 2017 (for reference year January 2018)
				This is the final structure for the 2018 SOC. Questions should be emailed to soc@bls.gov
11-0000				**Management Occupations**
	11-1000			**Top Executives**
		11-1010		Chief Executives
			11-1011	Chief Executives
		11-1020		General and Operations Managers
			11-1021	General and Operations Managers
		11-1030		Legislators
			11-1031	Legislators
	11-2000			**Advertising, Marketing, Promotions, Public Relations, and Sales Managers**
		11-2010		Advertising and Promotions Managers
			11-2011	Advertising and Promotions Managers

O*Net

O*Net

867 soc codes

1011 O*Net codes

☐ O*Net codes break done standard SOC codes even more

☐ adding a ".xx" at the end of SOC code creating the O*Net codes..

☐ Many of these are more job title based and not reportable.

Code	Occupation
15-1211.00	Computer Systems Analysts
15-1211.01	Health Informatics Specialists
15-1241.00	Computer Network Architects
15-1241.01	Telecommunications Engineering Specialists
15-1243.00	Database Architects
15-1243.01	Data Warehousing Specialists
15-1255.00	Web and Digital Interface Designers
15-1255.01	Video Game Designers
15-1299.00	Computer Occupations, All Other
15-1299.01	Web Administrators
15-1299.02	Geographic Information Systems Technologists and Technicians
15-1299.03	Document Management Specialists
15-1299.08	Computer Systems Engineers/Architects
15-1299.09	Information Technology Project Managers
15-2051.01	Business Intelligence Analysts

Industry

The "Economy"

Economy											
Goods Producing			Services Providing								
SUPER SECTOR (A) Natural Resouces and Mining	SUPER SECTOR (B) Construction	SUPER SECTOR (C) Manufacturing	SUPER SECTOR (D) Trade, Transportation, & Utilities	SUPER SECTOR (E) Information	SUPER SECTOR (F) Financial Activities	SUPER SECTOR (G) Professional & Business Services	SUPER SECTOR (H) Education and Health Services	SUPER SECTOR (I) Leisure & Hospitality	SUPER SECTOR (J) Other Services	SUPER SECTOR (K) Public Administration	SUPER SECTOR (L) Unclassified
Sectors (Industry Group) 11; 21	Sector (Industry Group) 23	Sectors (Industry Group) 31 - 33	Sectors (Industry Group) 22, 42, 44-45, 48-49	Sectors (Industry Group) 51	Sectors (Industry Group) 52, 53	Sectors (Industry Group) 54, 55, 56	Sectors (Industry Group) 61, 62	Sectors (Industry Group) 71, 72	Sectors (Industry Group) 81	Sectors (Industry Group) 92	Sectors (Industry Group) 99

NAICS (SIC)Codes

Sector	Name	Subsectors (3-digit)	Industry Groups (4-digit)	NAICS Industries (5-digit)	6-digit Industries		Total
					U.S. Detail	Same as 5-digit	
11	Agriculture, Forestry, Fishing and Hunting	5	19	42	32	32	64
21	Mining, Quarrying, and Oil and Gas Extraction	3	5	11	24	4	28
22	Utilities	1	3	6	10	4	14
23	Construction	3	10	28	4	27	31
31-33	Manufacturing	21	86	180	265	95	360
42	Wholesale Trade	3	19	71	0	71	71
44-45	Retail Trade	12	27	57	17	49	66
48-49	Transportation and Warehousing	11	29	42	25	32	57
51	Information	6	11	25	12	19	31
52	Finance and Insurance	5	11	31	15	26	41
53	Real Estate and Rental and Leasing	3	8	17	11	13	24
54	Professional, Scientific, and Technical Services	1	9	35	20	29	49
55	Management of Companies and Enterprises	1	1	1	3	0	3
56	Administrative and Support and Waste Management and Remediation Services	2	11	29	25	19	44
61	Educational Services	1	7	12	7	10	17
62	Health Care and Social Assistance	4	18	30	16	23	39
71	Arts, Entertainment, and Recreation	3	9	23	3	22	25
72	Accommodation and Food Services	2	6	10	8	7	15
81	Other Services (except Public Administration)	4	14	30	30	19	49
92	Public Administration	8	8	29	0	29	29
	Total	99	311	709	527	530	1057

SIC Codes

NAICS Codes

North American Industry Classification System (NAICS)

11 Agriculture, Forestry, Fishing and Hunting

1111 Oilseed and Grain Farming
- 111110 Soybean Farmiing
- 111120 Oilseed (except Soybean) Farming
- 111130 Dry Pean and Bean Farming

1112 Vegetable and Melon Farming
- 111211 Potato Farming
- 111219 Other Vegetable (except Potaot) and Melon Farming

1113 Furit and Tree Nut Farming
- 111310 Orange Groves
- 111320 Cltrus (except Orange) Groves
- 111331 Apple Orchards
- 11332 Grape Vinyards

SECTOR	20	2-digit level
INDUSTRY GROUPS	311	4-digit
NAISC INDUSTRIES	790	5- digit
US INDUSTRIES	527	6 - digit

https://www.census.gov/eos/www/naics/

Industry vs. Sectors

INDUSTRY	SECTOR
The cluster of firms that are involved in the processing or production of the same or similar kind of services or products is called an industry.	The segment of an economy, in which various or different business segments that can be classified, is known as a sector.
The classification of industries can be done based on an activity or the process performed by them.	The sector divides the whole economy in to which various other or different segments based on the business activities.
The scope of the industry is narrower than that of sector as we know there can be hundreds or thousands of those industries in an economy.	A sector of the whole economy will consist of hundreds or thousands of those industries.
The term industries can be used to define firms that are operating in a specific or particular segment.	The term sector is actually a comprehensive term, which will include all those industries that are working in a particular or specific segment.

The "CROSSWALK(s)"

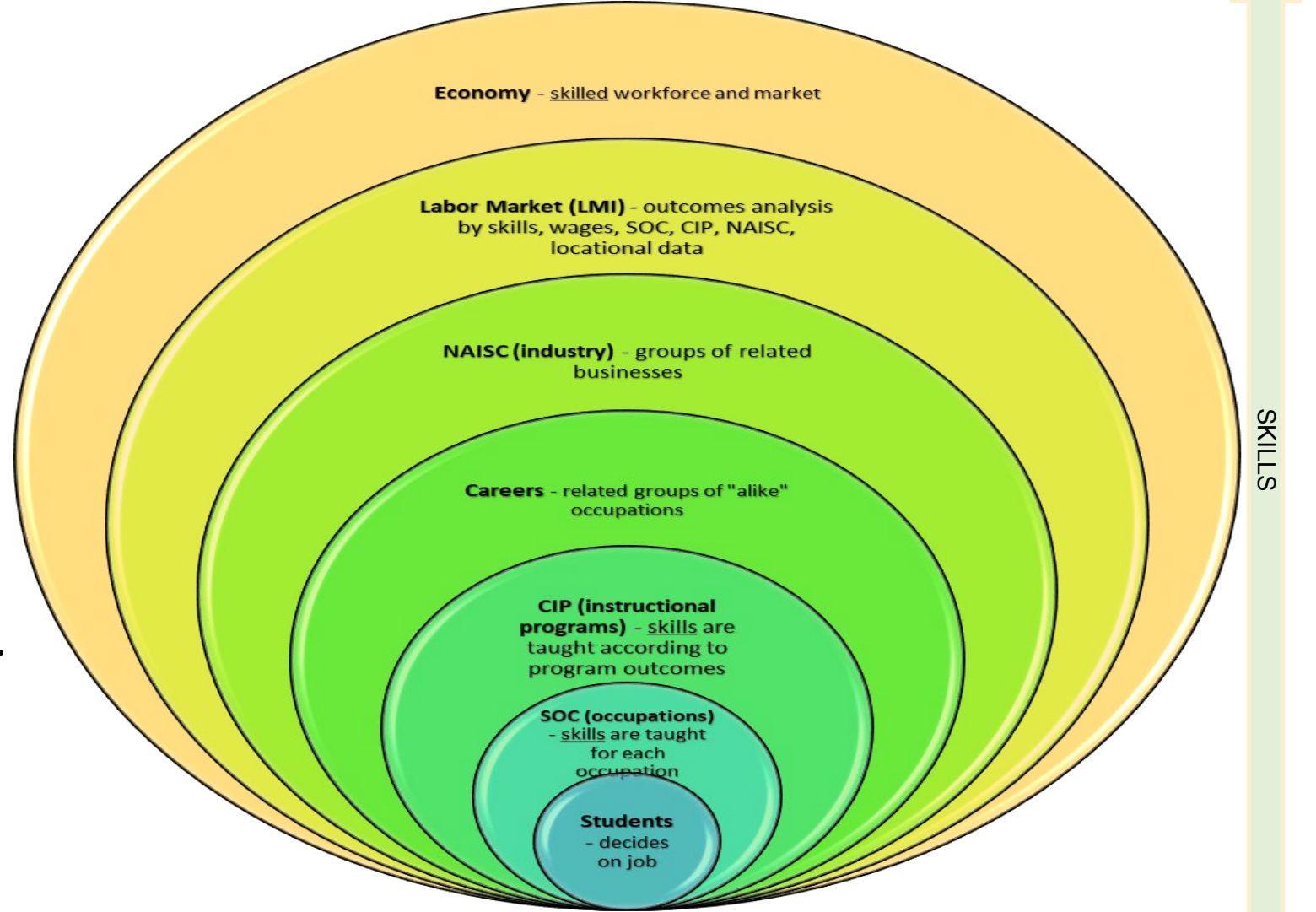| OES 2019 Estimates Code	OES 2019 Estimates Title	2018 SOC Code	2018 SOC Title	OES 2018 Estimates Code	OES 2018 Estimates Title	2010 SOC Code	2010 SOC Title
11-9081	Lodging Managers	11-9081	Lodging Managers	11-9081	Lodging Managers	11-9081	Lodging Managers
11-9111	Medical and Health Services Managers	11-9111	Medical and Health Services Managers	11-9111	Medical and Health Services Managers	11-9111	Medical and Health Services Managers
11-9121	Natural Sciences Managers	11-9121	Natural Sciences Managers	11-9121	Natural Sciences Managers	11-9121	Natural Sciences Managers
11-9131	Postmasters and Mail Superintendents	11-9131	Postmasters and Mail Superintendents	11-9131	Postmasters and Mail Superintendents	11-9131	Postmasters and Mail Superintendents
11-9141	Property, Real Estate, and Community Association Managers	11-9141	Property, Real Estate, and Community Association Managers	11-9141	Property, Real Estate, and Community Association Managers	11-9141	Property, Real Estate, and Community Association Managers
11-9151	Social and Community Service Managers	11-9151	Social and Community Service Managers	11-9151	Social and Community Service Managers	11-9151	Social and Community Service Managers
11-9161	Emergency Management Directors	11-9161	Emergency Management Directors	11-9161	Emergency Management Directors	11-9161	Emergency Management Directors
11-9171	Funeral Home Managers	11-9171	Funeral Home Managers	11-9061	Funeral Service Managers	11-9061	Funeral Service Managers
11-9198	Personal Service Managers, All Other; Entertainment and Recreation Managers, Except Gambling; and Managers, All Other	11-9072	Entertainment and Recreation Managers, Except Gambling	11-9199	Managers, All Other	11-9199	Managers, All Other
11-9198	Personal Service Managers, All Other; Entertainment and Recreation Managers, Except Gambling; and Managers, All Other	11-9179	Personal Service Managers, All Other	11-9199	Managers, All Other	11-9199	Managers, All Other
11-9198	Personal Service Managers, All Other; Entertainment and Recreation Managers, Except Gambling; and Managers, All Other	11-9199	Managers, All Other	11-9199	Managers, All Other	11-9199	Managers, All Other
11-1011	Chief Executives	11-1011	Chief Executives	11-1011	Chief Executives	11-1011	Chief Executives
11-1021	General and Operations Managers	11-1021	General and Operations Managers	11-1021	General and Operations Managers	11-1021	General and Operations Managers
11-1031	Legislators	11-1031	Legislators	11-1031	Legislators	11-1031	Legislators
13-1011	Agents and Business Managers of Artists, Performers, and Athletes	13-1011	Agents and Business Managers of Artists, Performers, and Athletes	13-1011	Agents and Business Managers of Artists, Performers, and Athletes	13-1011	Agents and Business Managers of Artists, Performers, and Athletes
13-1020	Buyers and Purchasing Agents	13-1021	Buyers and Purchasing Agents, Farm Products	13-1020	Buyers and Purchasing Agents	13-1021	Buyers and Purchasing Agents, Farm Products
13-1020	Buyers and Purchasing Agents	13-1022	Wholesale and Retail Buyers, Except Farm Products	13-1020	Buyers and Purchasing Agents	13-1022	Wholesale and Retail Buyers, Except Farm Products
13-1020	Buyers and Purchasing Agents	13-1023	Purchasing Agents, Except Wholesale, Retail, and Farm Products	13-1020	Buyers and Purchasing Agents	13-1023	Purchasing Agents, Except Wholesale, Retail, and Farm

Skills

Skills GAP(s)

Marketable Skills

The nexus to a skilled workforce - Marketable Skills

- **SKILLS** are the driving force for a robust economy—those skills are aligned thru the matrix of
  - CIP (Classification of Instruction Programs),
  - SOC (Standard Occupational Codes) and
  - NAISC (North American Industrial Standard Code).

- The skills needed to do a job are learned within a program of study (CIP) and are derived and driven by the skills of an occupation (SOC) and clustered by Industries.

Economy - <u>skilled</u> workforce and market

Labor Market (LMI) - outcomes analysis by skills, wages, SOC, CIP, NAISC, locational data

NAISC (industry) - groups of related businesses

Careers - related groups of "alike" occupations

CIP (instructional programs) - <u>skills</u> are taught according to program outcomes

SOC (occupations) - <u>skills</u> are taught for each occupation

Students - decides on job

SKILLS

"Skills Gap"

Question

Who can define what a "skills gap" is?

- The term "Skills Gap" is loosely used to broadly refer to the lack of adequate supply for the demand or other related "gaps" within LMI.

- However, there is a nuance about the term. As part of our working with LMI data, we will be able to address all 3 of these "skills.… opportunities",

Skills "GAP"

SKILLS "GAP"

1. **SKILLS SHORTAGE** _is more commonly, what we are really talking about - _ this is when training for a given occupation is adequate, but there just are not enough people getting that training and then entering that occupation.

2. **SKILLS GAP** is present when the training or education for a given occupation does not adequately prepare students for the demands of that occupation

3. _SKILLS MISMATCH_ is when, on a broader level, the supply and demand of skills—usually measured by education level—are out of sync.
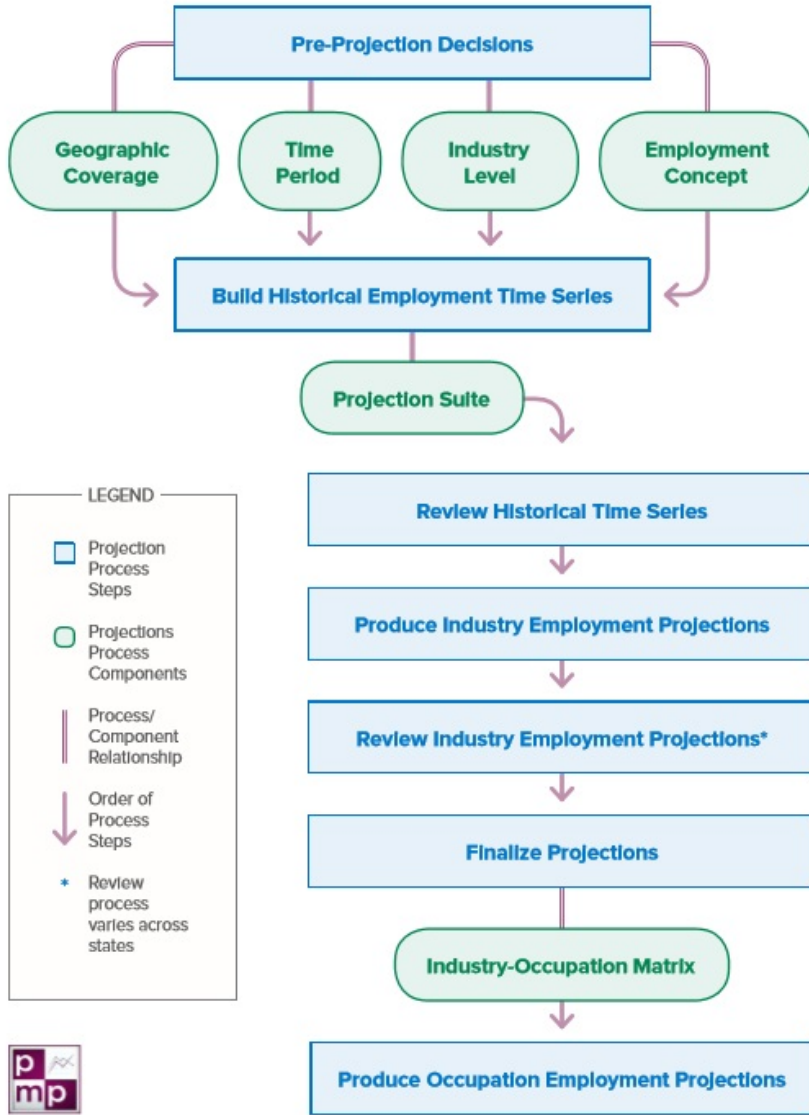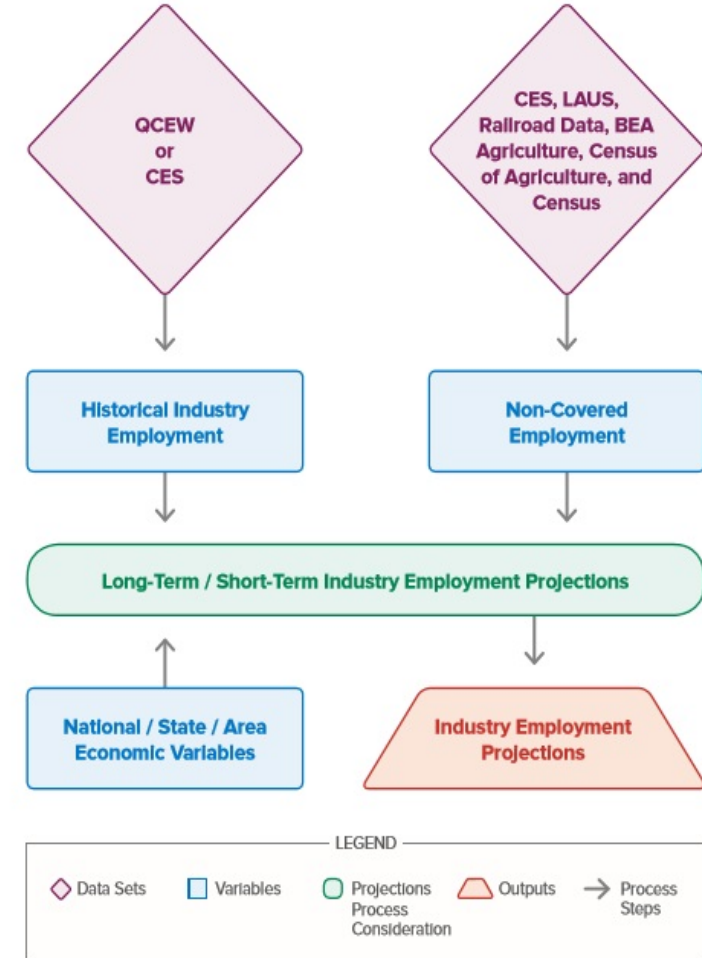
Competency Models
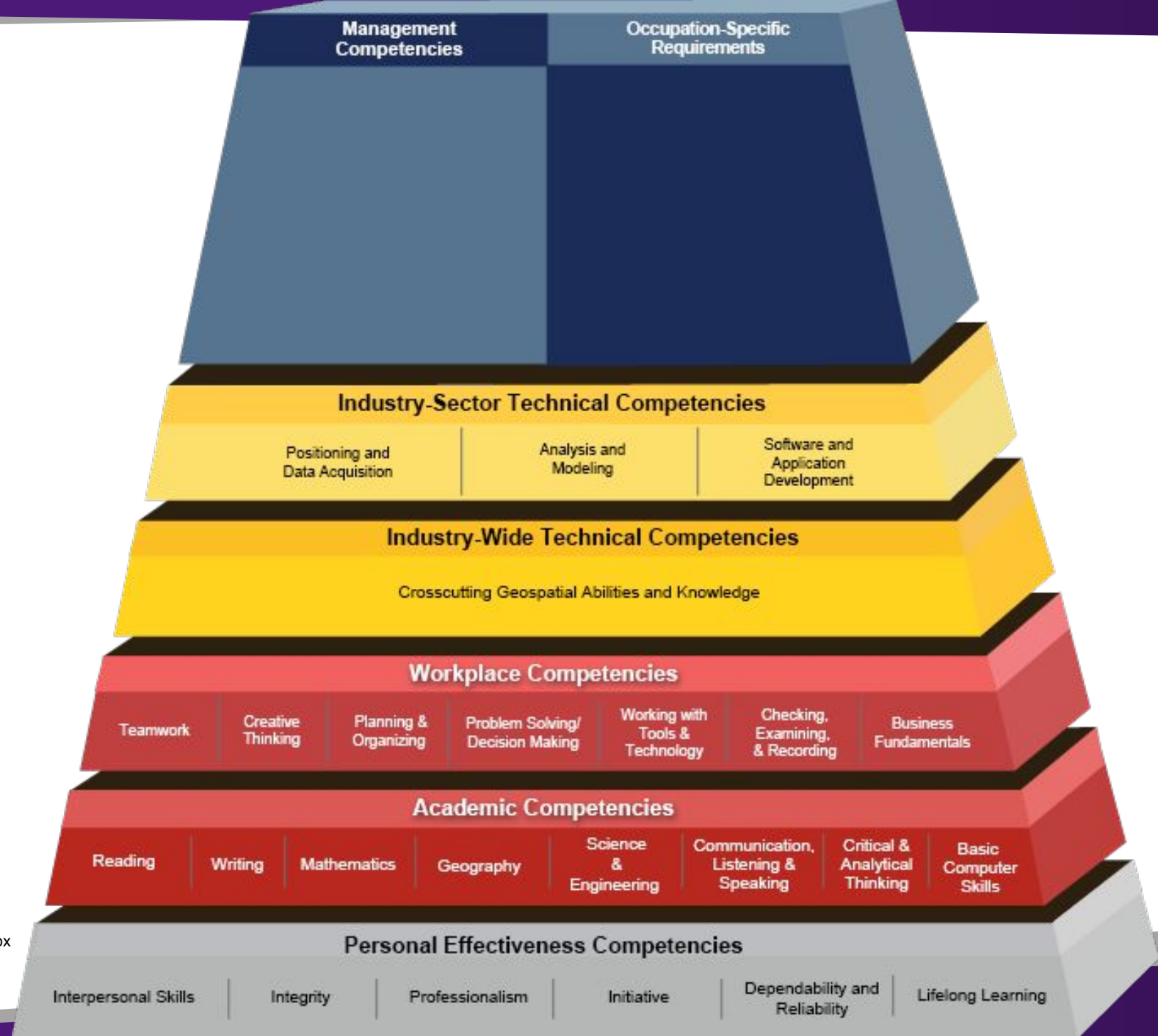
"Making the Sausage" (LMI

Job Projections
Migration Patterns
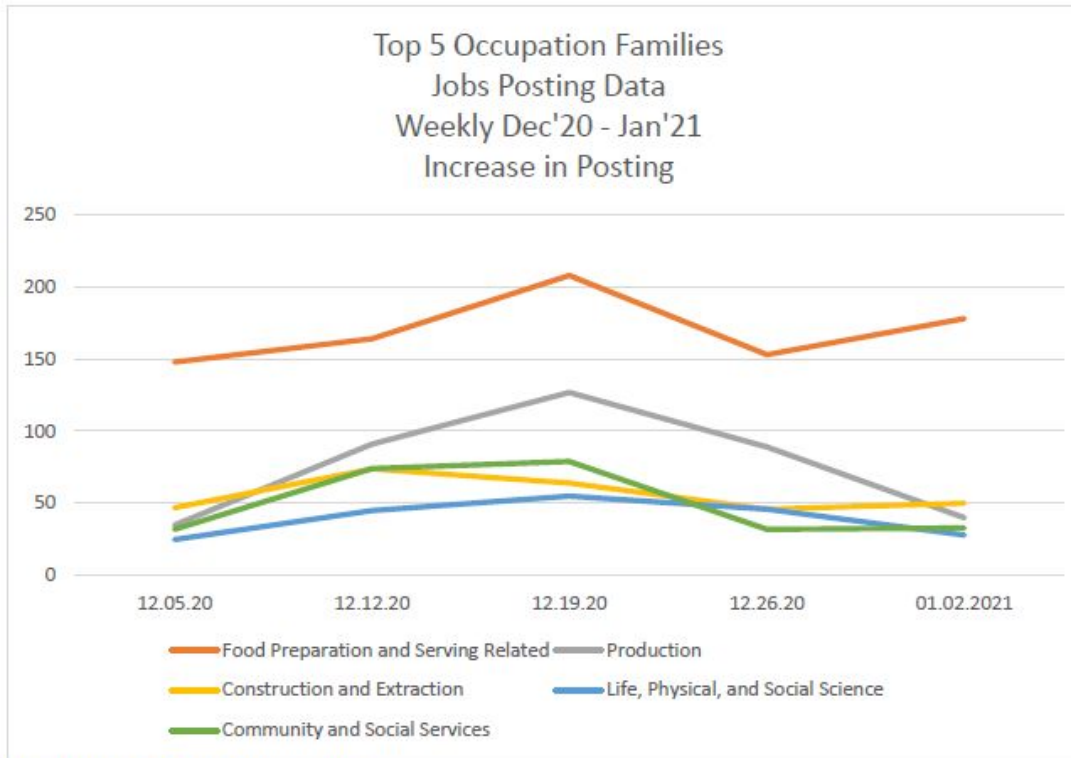Jobs Postings Data
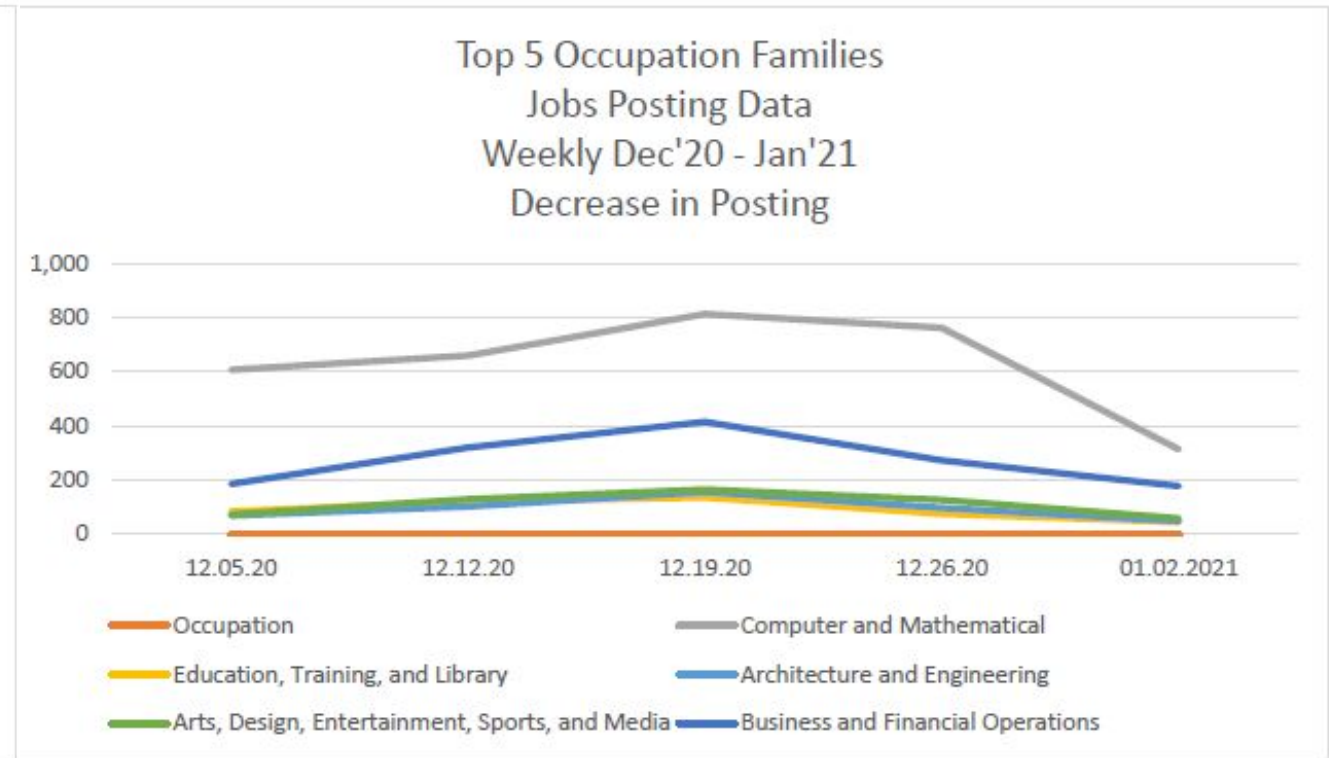Middle Skills

Employment Projections Process Flow

Pre-Projection Decisions

- Geographic Coverage
- Time Period
- Industry Level
- Employment Concept

↓

Build Historical Employment Time Series

↓

Projection Suite

↓

Review Historical Time Series

↓

Produce Industry Employment Projections

↓

Review Industry Employment Projections*

↓

Finalize Projections

↓

Industry-Occupation Matrix

↓

Produce Occupation Employment Projections

LEGEND

- ☐ Projection Process Steps
- ⬭ Projections Process Components
- ║ Process/ Component Relationship
- ↓ Order of Process Steps
- * Review process varies across states

Industry Employment Projections Process

QCEW or CES

↓

Historical Industry Employment

↓

Long-Term / Short-Term Industry Employment Projections

↑

National / State / Area Economic Variables

CES, LAUS, Railroad Data, BEA Agriculture, Census of Agriculture, and Census

↓

Non-Covered Employment

↓

→ **Industry Employment Projections**

LEGEND

- ◇ Data Sets
- ☐ Variables
- ⬭ Projections Process Consideration
- ⬟ Outputs
- → Process Steps

Job Postings (JP or RTI)

Top 5 Occupation Families
Jobs Posting Data
Weekly Dec'20 - Jan'21
Increase in Posting

Top Detailed O*Net Occupations

Top 5 Occupation Families
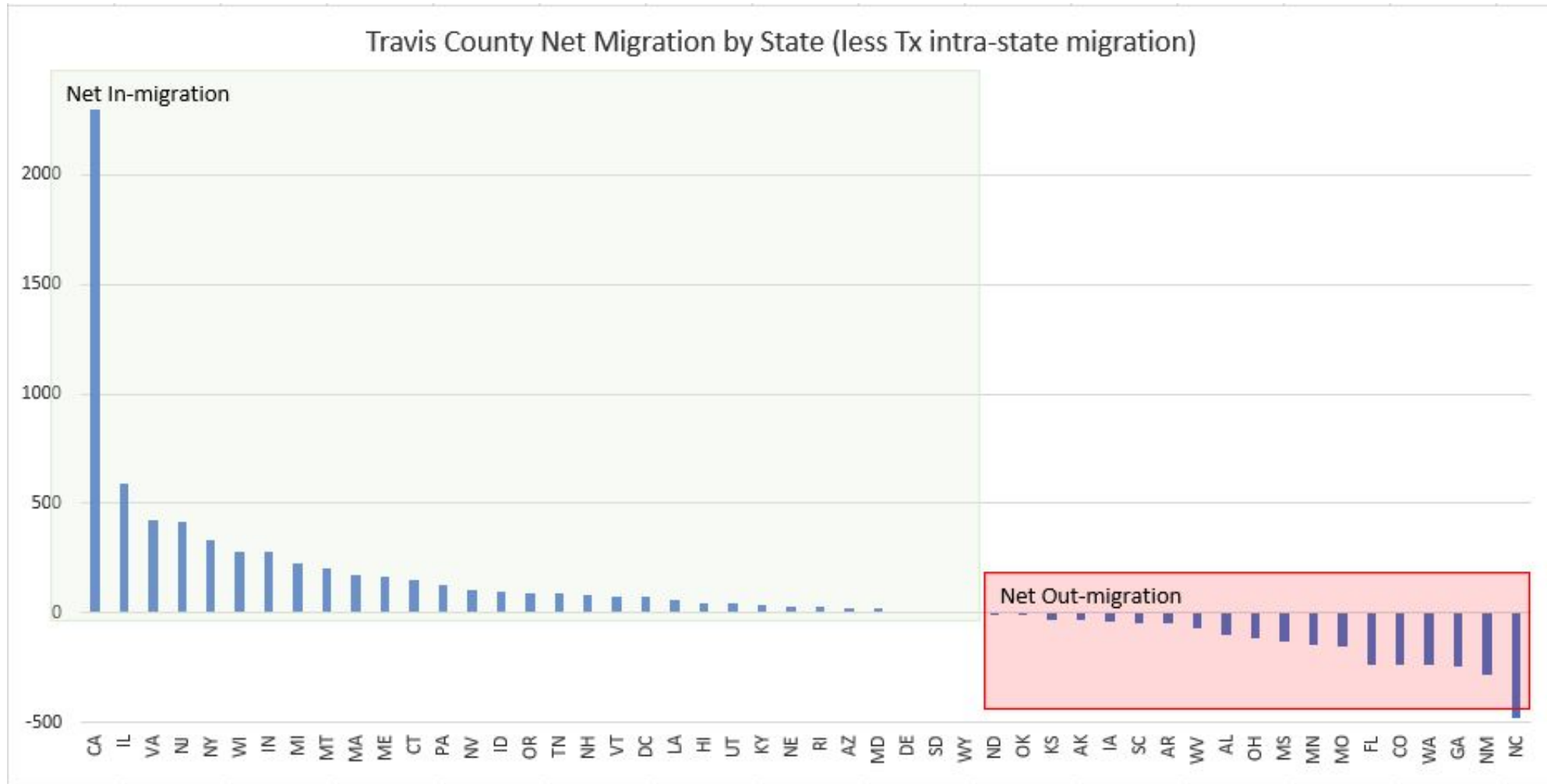Jobs Posting Data
Weekly Dec'20 - Jan'21
Decrease in Posting

Top Detailed O*Net Occupations
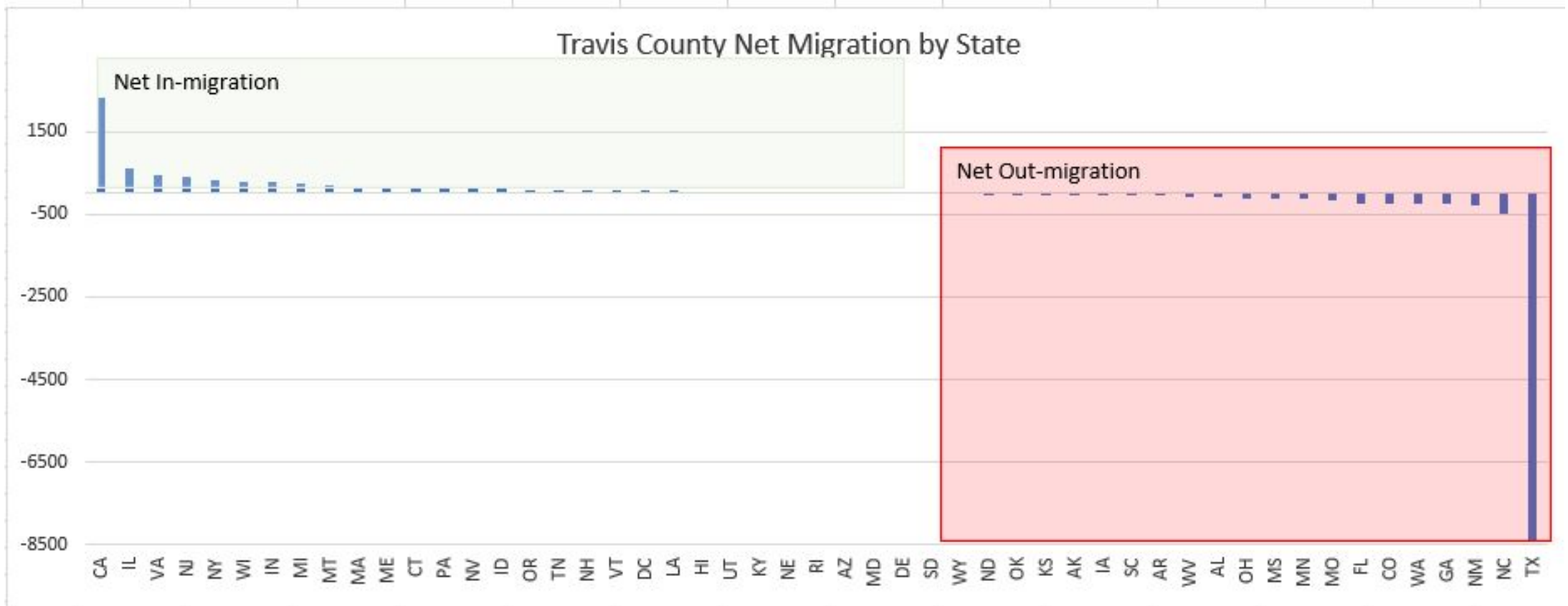
Migration Patterns

Migration Patterns

Travis County Net Migration by State (less Tx intra-state migration)

Migration Patterns

Texas Intra-State Net Migrations - County level
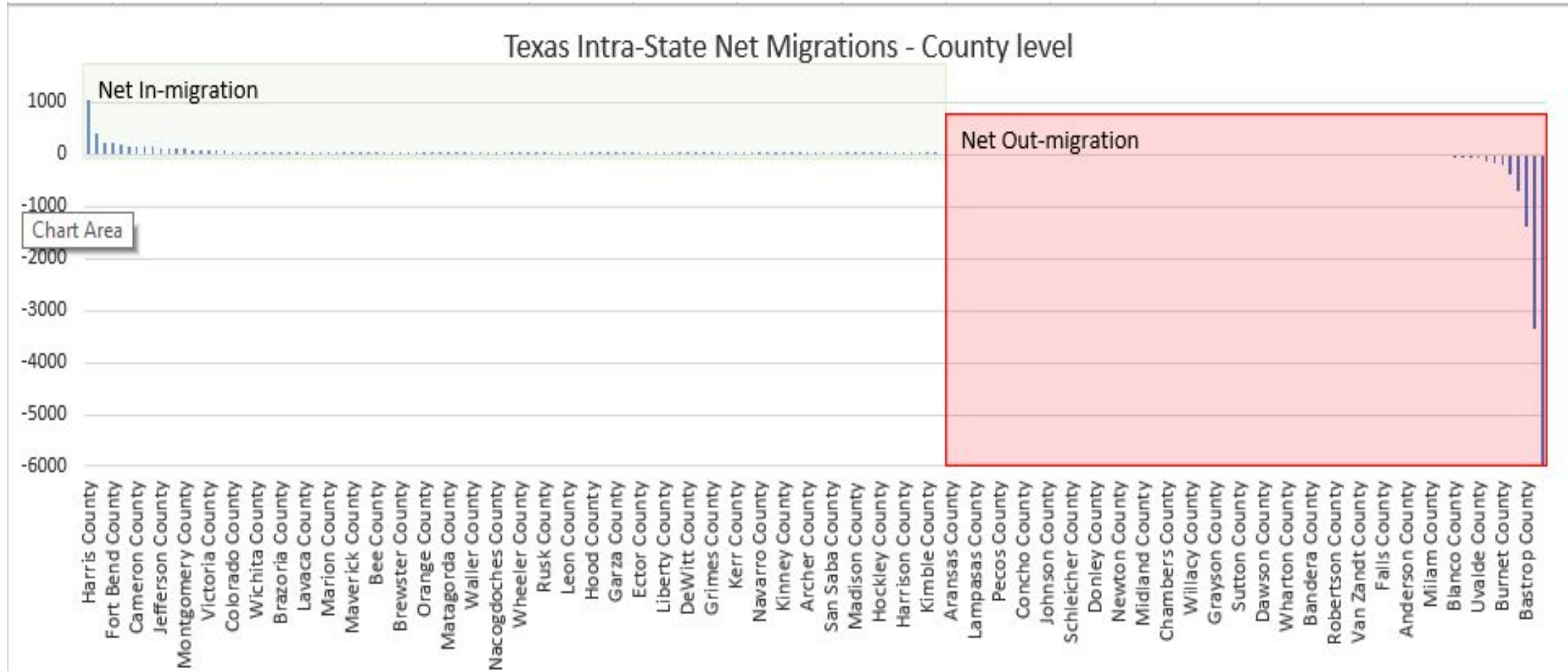
Migration Patterns
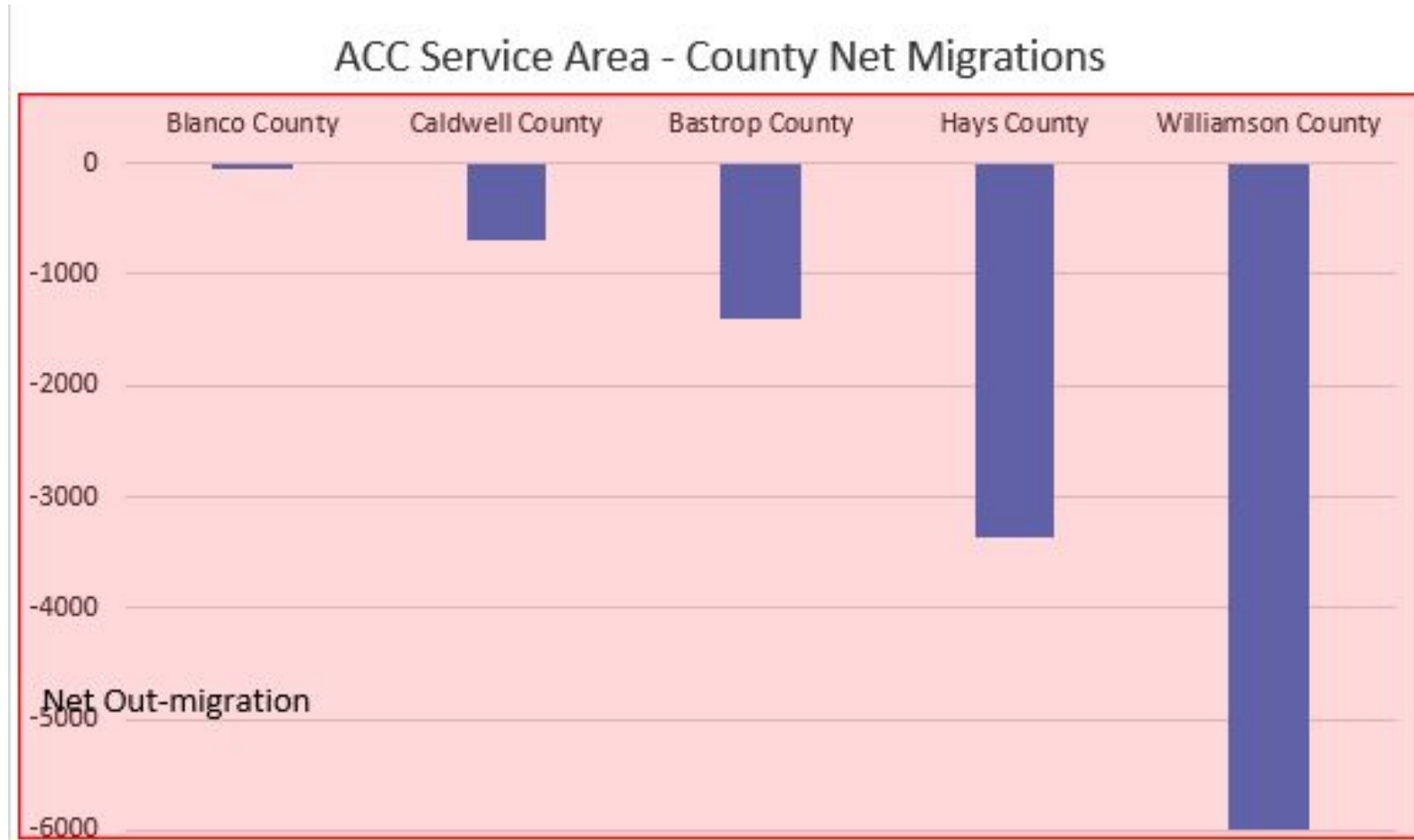
Middle Skills
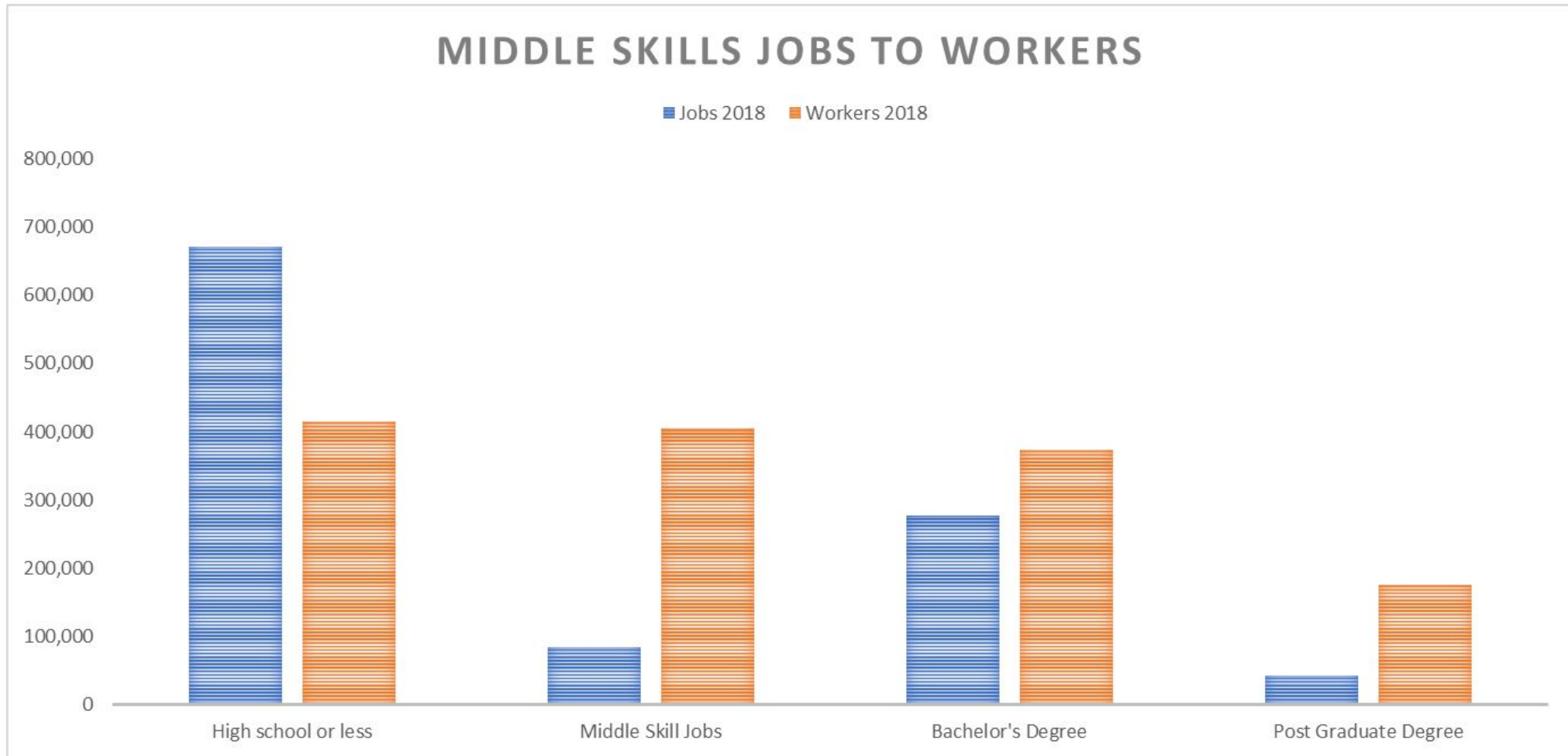
MIDDLE SKILLS JOBS TO WORKERS
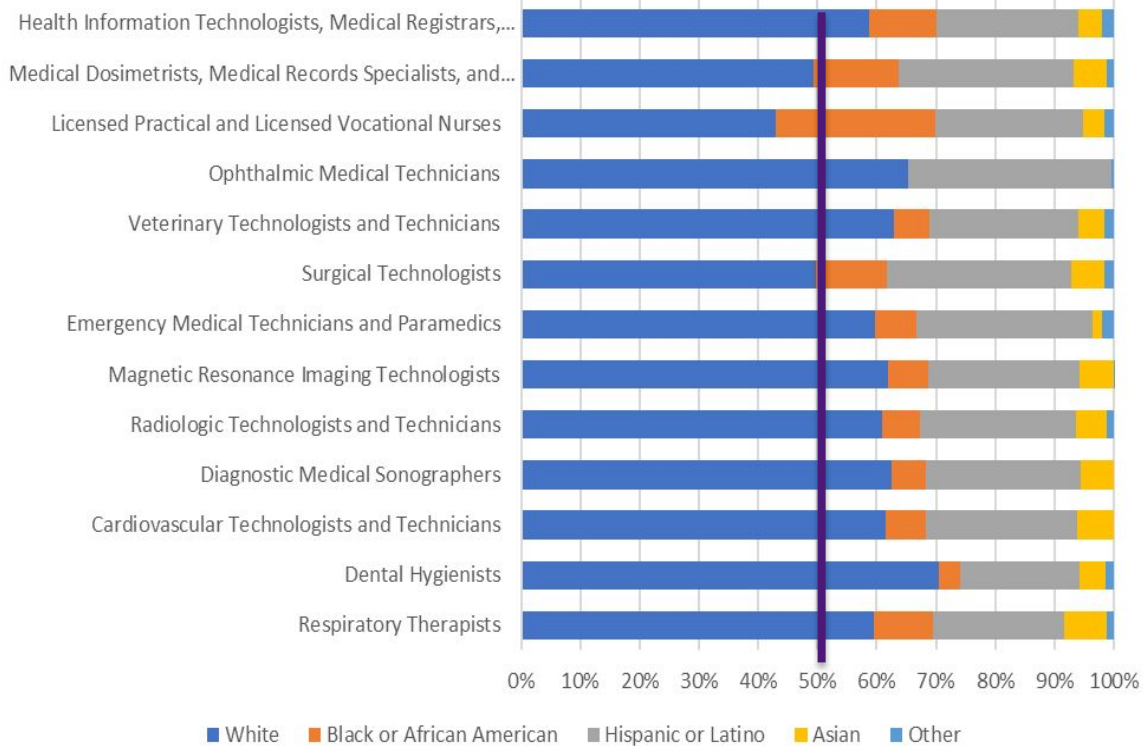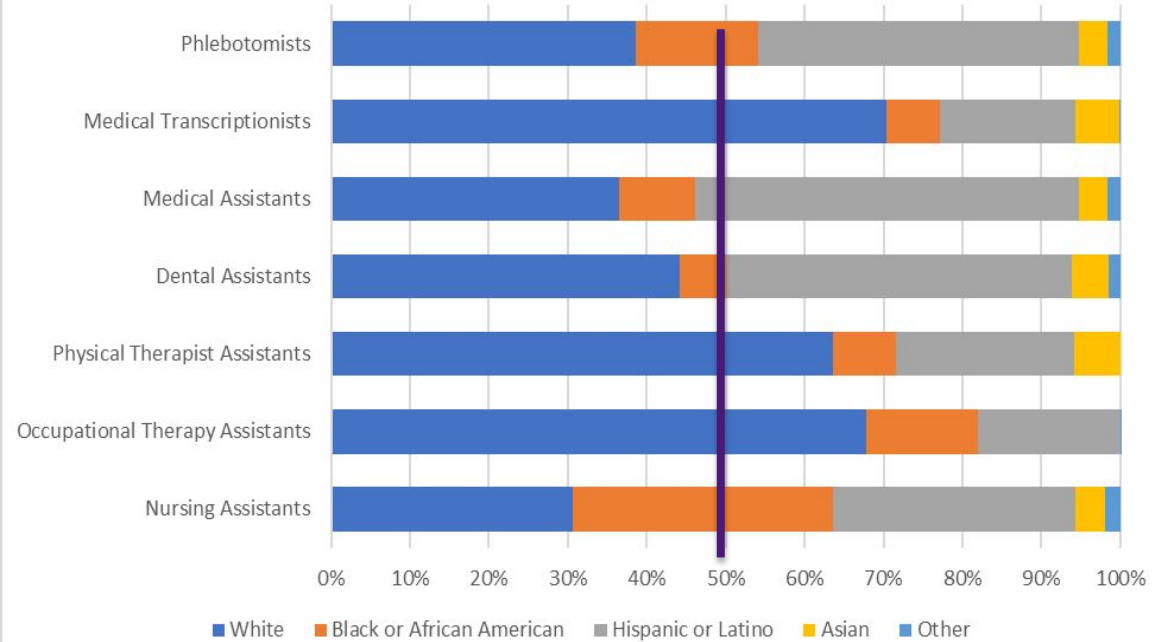
Middle Skills – Equity Lens

Middle Skills – Equity Lens

Business and Financial Operations Occupations
Computer and Mathematical Occupations
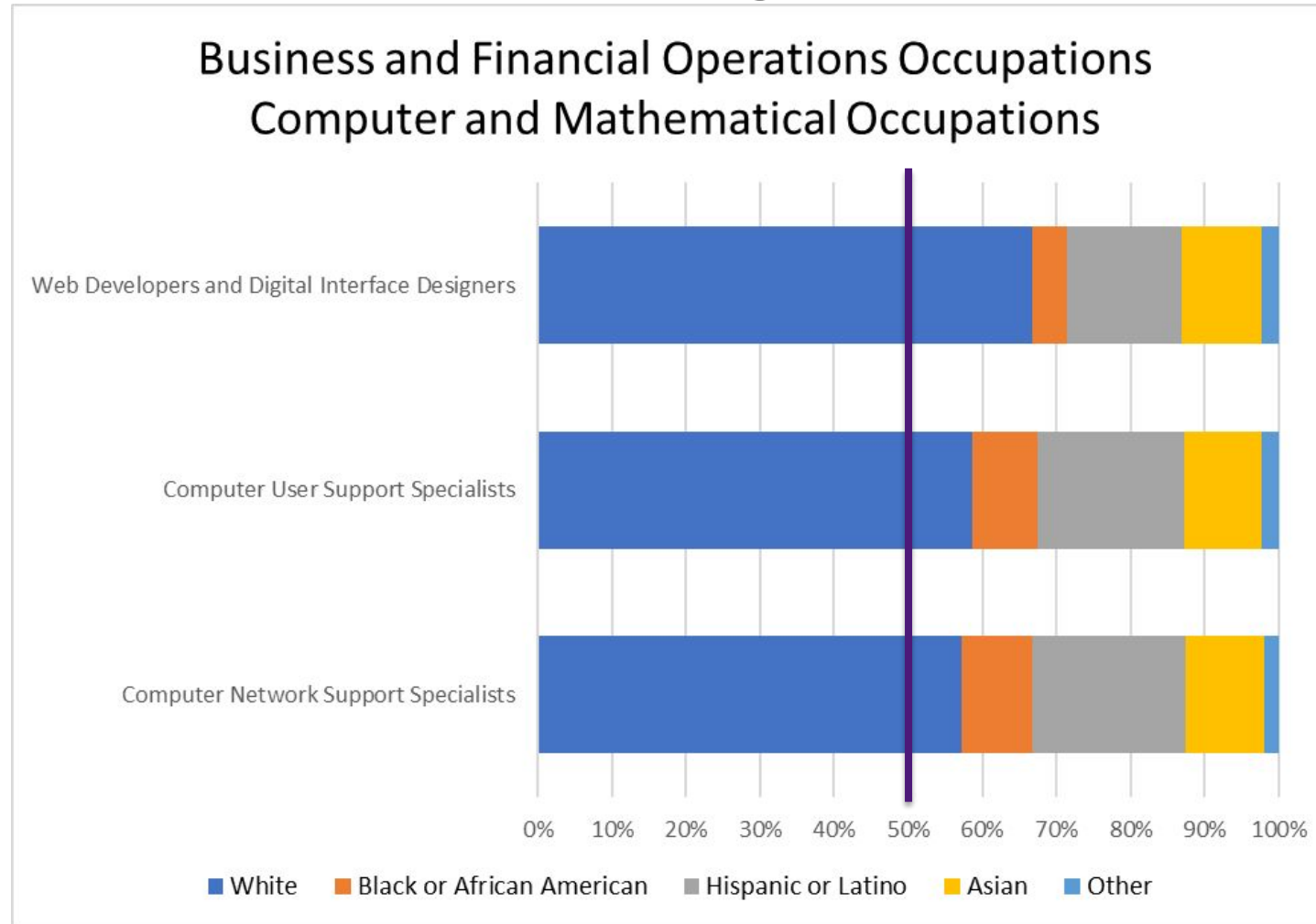
Middle Skilled Jobs and wages

Occupation	Empl	Median Annual Wages[2]
Fast Food and Counter Workers	34,173	$ 22,600
Retail Salespersons	31,383	$ 24,800
Office Clerks, General	28,216	$ 37,900
Customer Service Representatives	25,142	$ 33,100
Cashiers	22,816	$ 24,100
Software Developers and Software Quality Assurance Analysts and Testers	20,784	$ 104,000
General and Operations Managers	19,955	$ 102,100
Waiters and Waitresses	19,321	$ 20,000
Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	16,476	$ 36,900
Janitors and Cleaners, Except Maids and Housekeeping Cleaners	15,303	$ 27,100
Laborers and Freight, Stock, and Material Movers, Hand	13,867	$ 27,200
Registered Nurses	13,587	$ 71,800
Stockers and Order Fillers	13,576	$ 29,100
Project Management Specialists and Business Operations Specialists, All Other	12,438	$ 75,600
Bookkeeping, Accounting, and Auditing Clerks	12,346	$ 42,300
Construction Laborers	12,253	$ 31,800
Accountants and Auditors	11,316	$ 70,600
First-Line Supervisors of Office and Administrative Support Workers	10,998	$ 61,400
Sales Representatives of Services, Except Advertising, Insurance, Financial Services, al	10,993	$ 44,900
Personal Care Aides	10,667	$ 21,500
Maintenance and Repair Workers, General	10,524	$ 36,800
Cooks, Restaurant	10,380	$ 27,300
First-Line Supervisors of Retail Sales Workers	10,216	$ 40,900

"Careers" the many flavors

Career Pathways/ Clusters

Career Progression/ Lattice/ Ladders

Competency Models

Guided Pathways vs. Career Progressions

Guided Pathway: [Career Pathway] [Stackable Credentials]

Institution/
Data structured
focus

Career Progression:

Student Centered
focus

Perkins IV
Career Clusters
Career Pathways

Agriculture, Food & Natural Resources
- Agribusiness Systems
- Animal Systems
- Environmental Service Systems
- Food Products & Processing Systems
- Natural Resources Systems
- Plant Systems
- Power, Structural & Technical Systems
  Architecture & Construction

Architecture & Construction
- Construction
- Design/Pre-Construction
- Maintenance/Operations

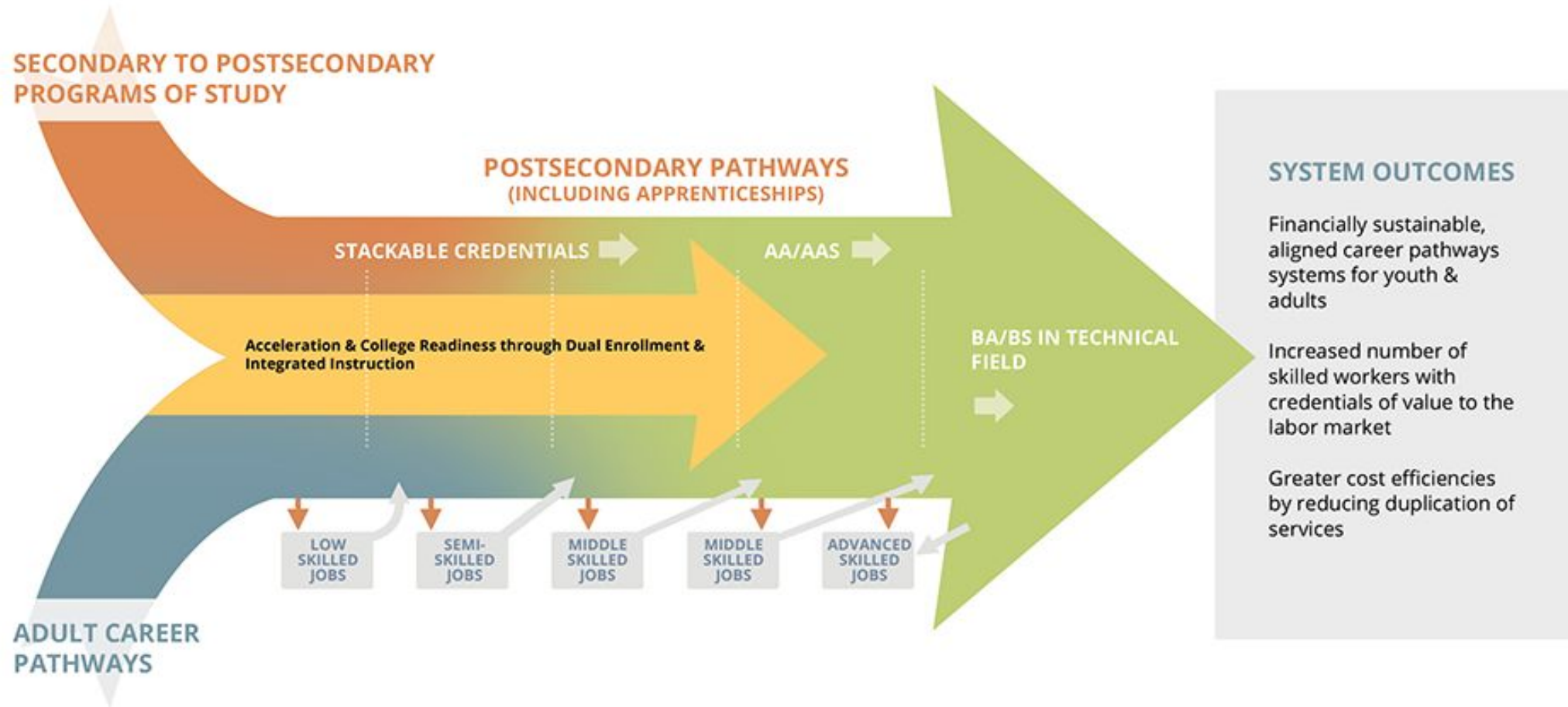## Arts, A/V Technology & Communications
- A/V Technology & Film
- Journalism & Broadcasting
- Performing Arts
- Printing Technology
- Telecommunications
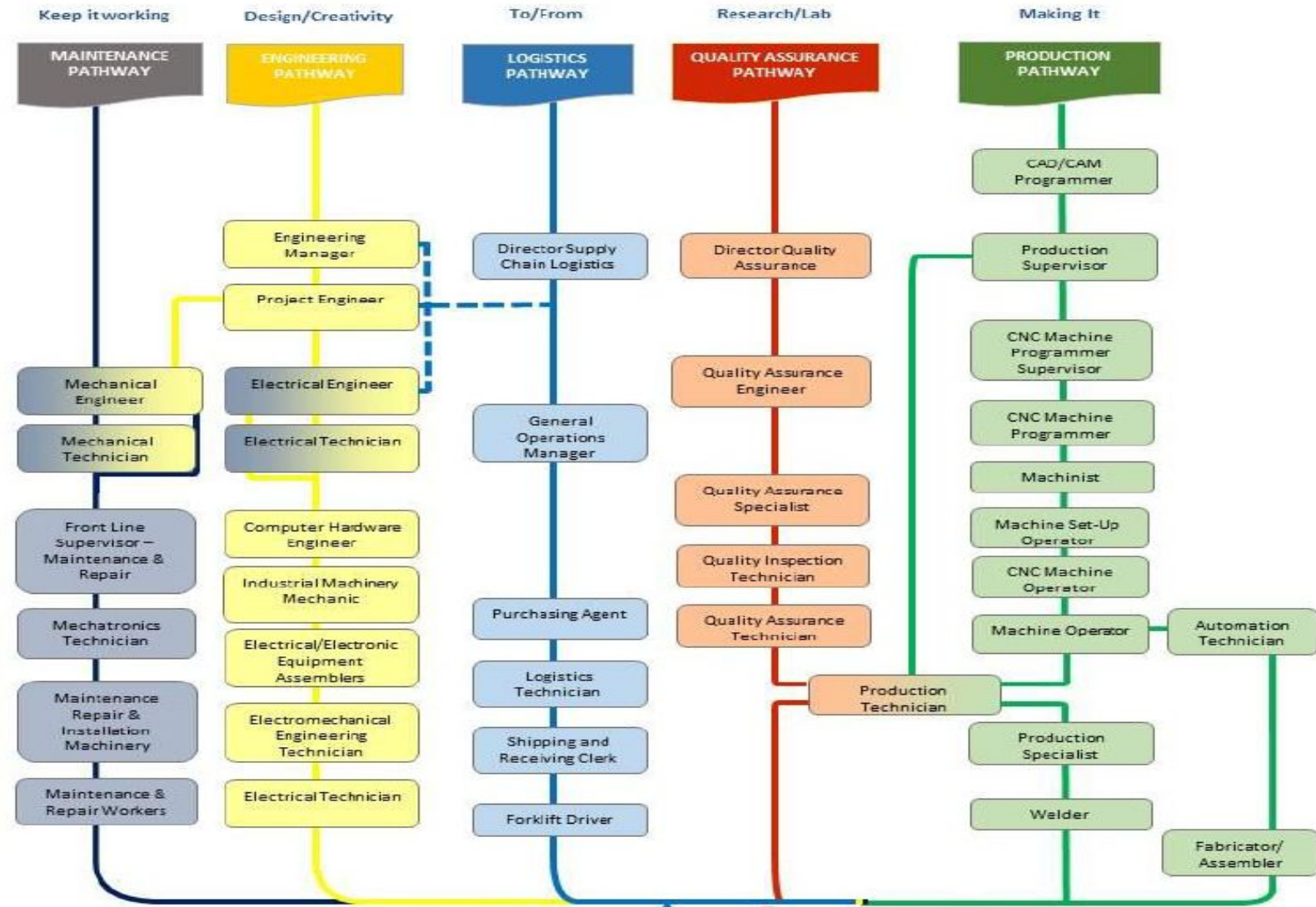- Visual Arts

Business Management & Administration
- Administrative Support
- Business Information Management
- General Management
- Human Resources Management
- Operations Management

Career Pathways (Perkins Collaborative Resource Network)

Career Progression / Ladder/ Lattice

Colorado Advanced Manufacturing Hot Jobs thru 2024

Keep it working	Design/Creativity	To/From	Research/Lab	Making It
MAINTENANCE PATHWAY	**ENGINEERING PATHWAY**	**LOGISTICS PATHWAY**	**QUALITY ASSURANCE PATHWAY**	**PRODUCTION PATHWAY**

Maintenance Pathway: Mechanical Engineer, Mechanical Technician, Front Line Supervisor – Maintenance & Repair, Mechatronics Technician, Maintenance Repair & Installation Machinery, Maintenance & Repair Workers

Engineering Pathway: Engineering Manager, Project Engineer, Electrical Engineer, Electrical Technician, Computer Hardware Engineer, Industrial Machinery Mechanic, Electrical/Electronic Equipment Assemblers, Electromechanical Engineering Technician, Electrical Technician

Logistics Pathway: Director Supply Chain Logistics, General Operations Manager, Purchasing Agent, Logistics Technician, Shipping and Receiving Clerk, Forklift Driver

Quality Assurance Pathway: Director Quality Assurance, Quality Assurance Engineer, Quality Assurance Specialist, Quality Inspection Technician, Quality Assurance Technician

Production Pathway: CAD/CAM Programmer, Production Supervisor, CNC Machine Programmer Supervisor, CNC Machine Programmer, Machinist, Machine Set-Up Operator, CNC Machine Operator, Machine Operator, Automation Technician, Production Technician, Production Specialist, Welder, Fabricator/Assembler

Middle, High School, & University Students — Incumbent Workers, Adult Learners, Veterans

Sample Course Sequence

Which path would you take for a career in Advanced Manufacturing?

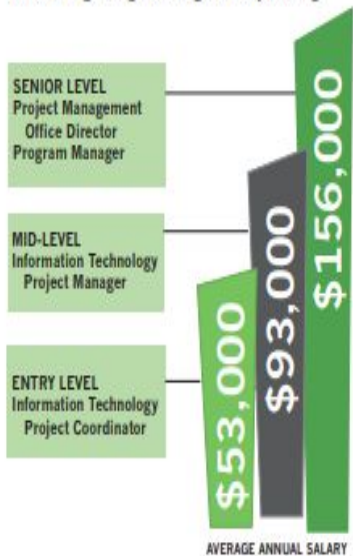K-12, Career Counselor, Workforce Center, VA Center

GED Prep, Credit for Prior Learning, Readiness Assessment
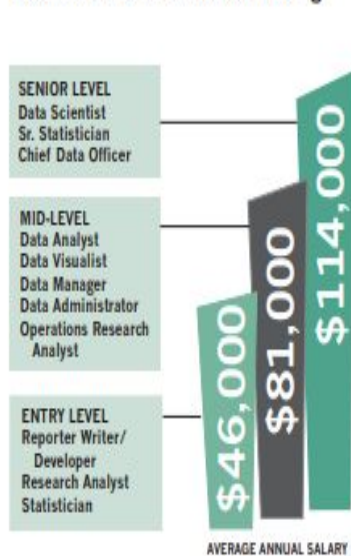
Project Management

Keeps projects on track.

PRIMARY ROLE:
Planning, Organizing, Completing

SENIOR LEVEL
Project Management
Office Director
Program Manager

MID-LEVEL
Information Technology
Project Manager

ENTRY LEVEL
Information Technology
Project Coordinator

$53,000 $93,000 $156,000

AVERAGE ANNUAL SALARY

Data Analytics

Translates numbers into plain English.

PRIMARY ROLE:
Examination and Decision-making

SENIOR LEVEL
Data Scientist
Sr. Statistician
Chief Data Officer

MID-LEVEL
Data Analyst
Data Visualist
Data Manager
Data Administrator
Operations Research
Analyst

ENTRY LEVEL
Reporter Writer/
Developer
Research Analyst
Statistician

$46,000 $81,000 $114,000

AVERAGE ANNUAL SALARY

Business, Sales & Management

Combines business background with IT experience.

PRIMARY ROLE:
Communications & Problem-solving

SENIOR LEVEL
Chief Information
Officer (CIO)

MID-LEVEL
Business Analyst
Business Process
Improvement
Specialist
Management Analyst
Workflow Developer

ENTRY LEVEL
Associate Analyst
Jr. Business Analyst

$46,000 $76,000 $157,000

AVERAGE ANNUAL SALARY
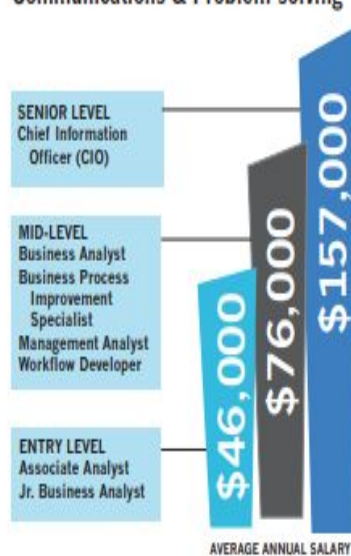
Support & Services

Network and Systems Administration

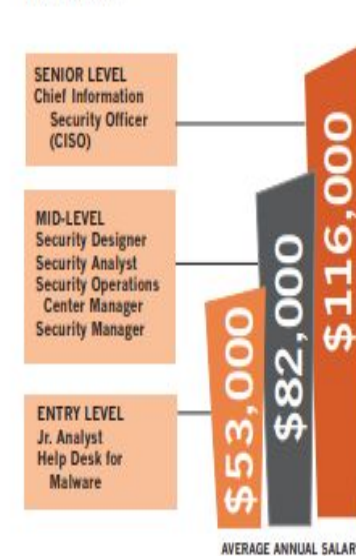Launching pad to careers in a range of information technology
and cyber security jobs.

PRIMARY ROLE:
Customer Services

SENIOR LEVEL
Service Owner
Customer Service
Director
System Architect
Network Architect
Chief Technology
Officer

MID-LEVEL
Service Manager
System Administrator
Network Administrator

ENTRY LEVEL
IT Technician
Help Desk
Tech Support
Customer Service
Specialist
Network Technician
IT Support

$45,000 $75,000 $162,000

AVERAGE ANNUAL SALARY
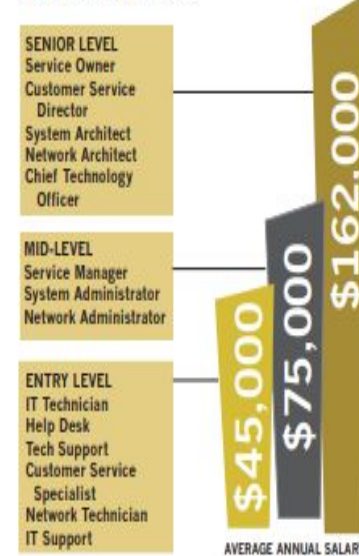
Cyber Security

Involved in every aspect of information technology
protection from administrative to operations.

PRIMARY ROLE:
Protection

SENIOR LEVEL
Chief Information
Security Officer
(CISO)

MID-LEVEL
Security Designer
Security Analyst
Security Operations
Center Manager
Security Manager

ENTRY LEVEL
Jr. Analyst
Help Desk for
Malware

$53,000 $82,000 $116,000

AVERAGE ANNUAL SALARY
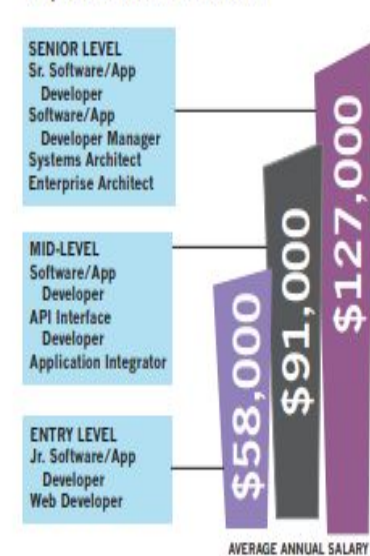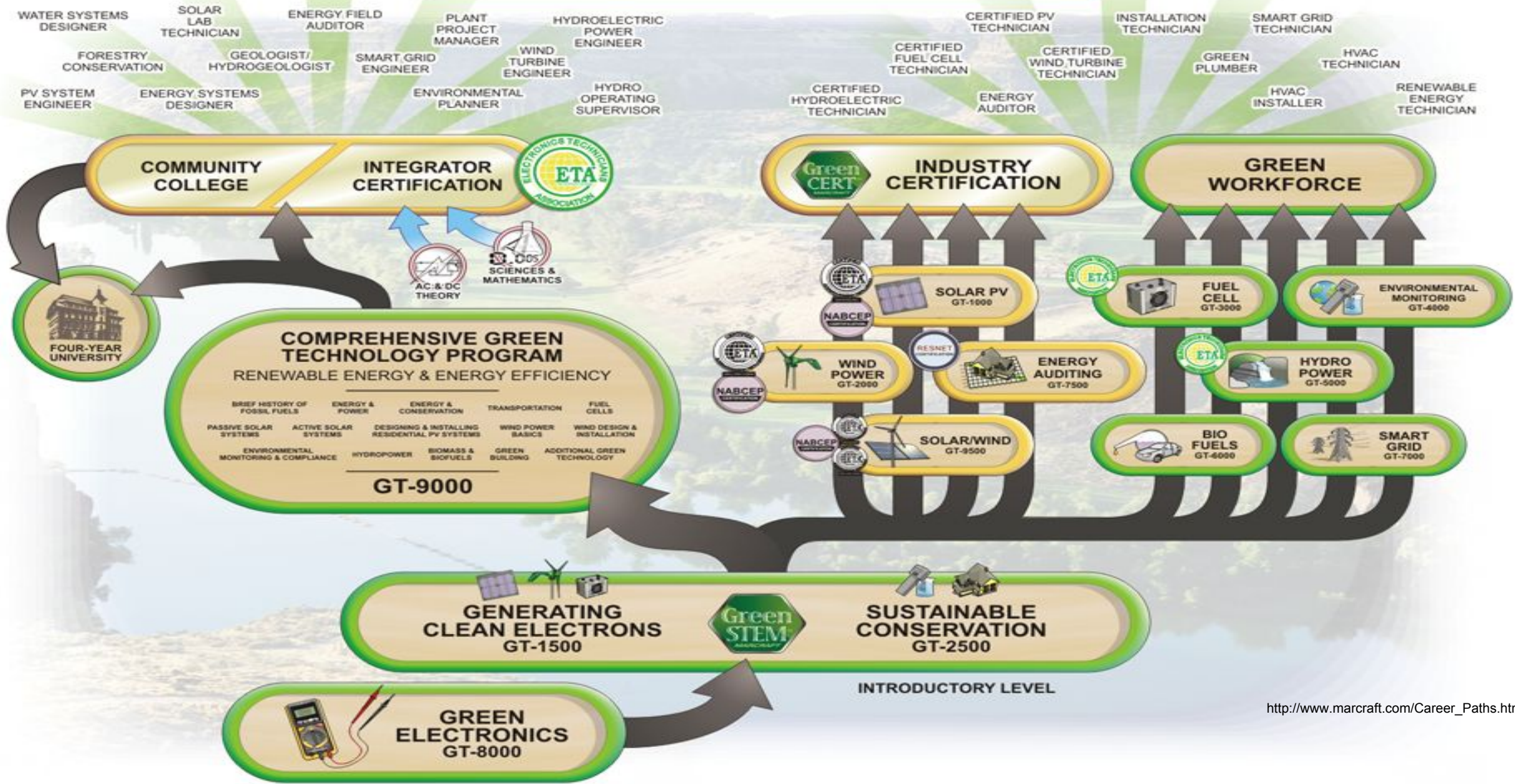
Development & Integration

Supports the implementation and rollout of new computer
network infrastructure in companies.

PRIMARY ROLE:
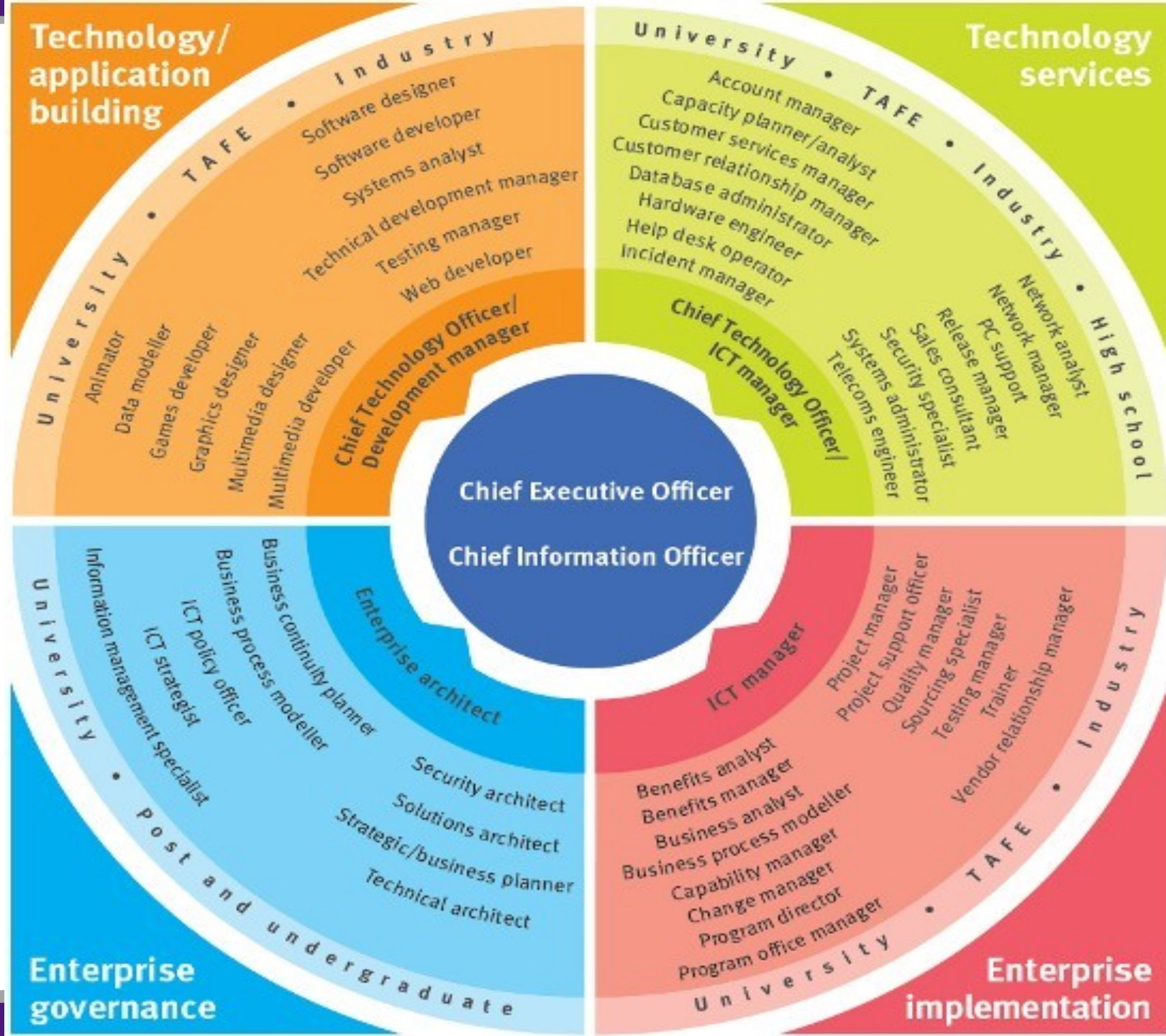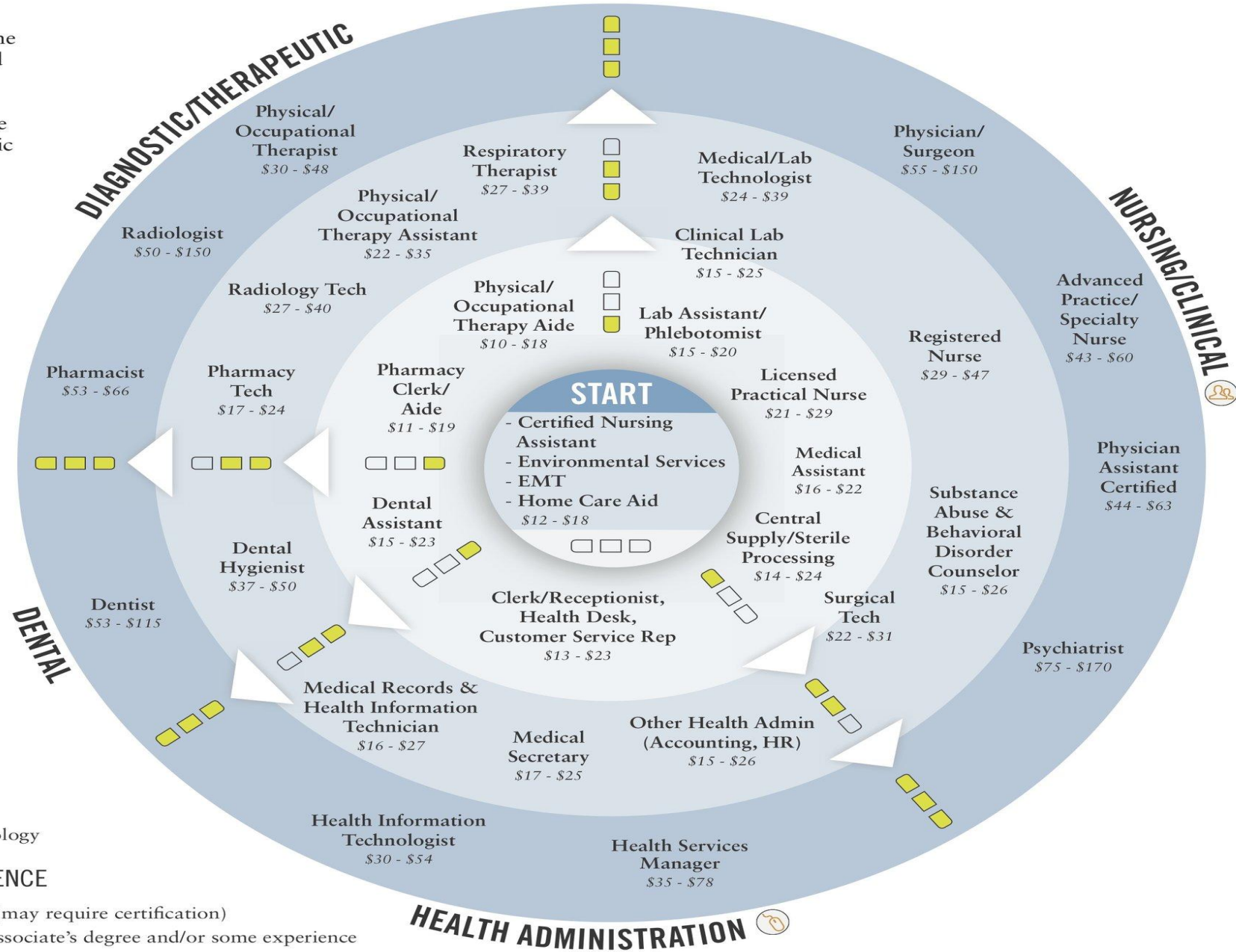**Implementation & Rollout**

SENIOR LEVEL
Sr. Software/App
Developer
Software/App
Developer Manager
Systems Architect
Enterprise Architect

MID-LEVEL
Software/App
Developer
API Interface
Developer
Application Integrator

ENTRY LEVEL
Jr. Software/App
Developer
Web Developer

$58,000 $91,000 $127,000

AVERAGE ANNUAL SALARY

GREEN TECHNOLOGY CAREER PATHS

http://www.marcraft.com/Career_Paths.html

Career Pathways / Progression / Ladder/ Lattice

This map includes some of the most in-demand healthcare jobs in Seattle-King County, including branches like nursing and therapeutic care, but the industry has many other opportunities—from behavioral health to marketing. Although career progression is largely tied to education, entry-level positions provide a helpful window into healthcare's different branches.

DIAGNOSTIC/THERAPEUTIC

Physical/Occupational Therapist
$30 - $48

Respiratory Therapist
$27 - $39

Medical/Lab Technologist
$24 - $39

Physician/Surgeon
$55 - $150

Radiologist
$50 - $150

Physical/Occupational Therapy Assistant
$22 - $35

Clinical Lab Technician
$15 - $25

Radiology Tech
$27 - $40

Physical/Occupational Therapy Aide
$10 - $18

Lab Assistant/Phlebotomist
$15 - $20

Advanced Practice/Specialty Nurse
$43 - $60

Registered Nurse
$29 - $47

Pharmacist
$53 - $66

Pharmacy Tech
$17 - $24

Pharmacy Clerk/Aide
$11 - $19

Licensed Practical Nurse
$21 - $29

Physician Assistant Certified
$44 - $63

START
- Certified Nursing Assistant
- Environmental Services
- EMT
- Home Care Aid
$12 - $18

Medical Assistant
$16 - $22

Dental Assistant
$15 - $23

Central Supply/Sterile Processing
$14 - $24

Substance Abuse & Behavioral Disorder Counselor
$15 - $26

Dental Hygienist
$37 - $50

Clerk/Receptionist, Health Desk, Customer Service Rep
$13 - $23

Surgical Tech
$22 - $31

Dentist
$53 - $115

Medical Records & Health Information Technician
$16 - $27

Medical Secretary
$17 - $25

Other Health Admin (Accounting, HR)
$15 - $26

Psychiatrist
$75 - $170

Health Information Technologist
$30 - $54

Health Services Manager
$35 - $78

DENTAL

HEALTH ADMINISTRATION

NURSING/CLINICAL

HEALTHCARE

TRANSFER SKILLS BETWEEN

Public Sector

Information Technology

EDUCATION / EXPERIENCE

☐☐☐ Entry-level (may require certification)
▣☐☐ Less than Associate's degree and/or some experience
▣▣☐ Associate's or Bachelor's degree and/or moderate experience
▣▣▣ Advanced degree and/or significant experience

Range of hourly wages from entry-level to experienced (2018), Emsi

https://w...

5

Career Progression / Ladder/ Lattice

NURSING ASSISTANT

CAPITAL AREA CAREER LADDER

* Also Included on Targeted Occupation List (PY 2019)

Nurse Practitioner

Hourly Wages
- Entry Level: $36.69
- Median Level: $50.20

Typical Education & Experience
- Master's Degree

236 new & replacement positions between 2016-2026

*Registered Nurse (RN)

Hourly Wages
- Entry Level: $26.12
- Median Level: $31.80

Typical Education & Experience
- Associate's or Bachelor's Degree
- Licensing/ Registration Required

3,225 new & replacement positions between 2016-2026

*Licensed Vocational Nurse (LVN)

Hourly Wages
- Entry Level: $16.81
- Median Level: $22.51

Typical Education & Experience
- Postsecondary non-degree award
- Licensing required

527 new & replacement positions between 2016-2026

Certified Nursing Assistant (CNA)

Hourly Wages
- Entry Level: $10.29
- Median Level: $13.06

Typical Education & Experience
- Postsecondary non-degree award

Career Progression / Ladder/ Lattice

AUTOMOTIVE SERVICE TECHNICIAN & MECHANIC

CAPITAL AREA CAREER LADDER

* Also Included on Targeted Occupation List (PY 2019)

Aircraft Mechanic & Service Technician

Hourly Wages
- Entry Level: $26.63
- Median Level: $33.55

Typical Education & Experience
- Postsecondary non-degree award

23 new & replacement positions between 2016-2026

*Bus & Truck Mechanic and Diesel Engine Specialist

Hourly Wages
- Entry Level: $17.13
- Median Level: $22.96

Typical Education & Experience
- High School Diploma or Equivalent
- Long-term on-the-job training

149 new & replacement positions between 2016-2026

Automotive Service Technician & Mechanic

Hourly Wages
- Entry Level: $13.89
- Median Level: $23.11

Typical Education & Experience
- High School Diploma or Equivalent
- Short-term on-the-job training

326 new & replacement positions between 2016-2026

Tire Repairer & Changer

Hourly Wages
- Entry Level: $10.75
- Median Level: $12.67

Typical Education & Experience
- High School Diploma or Equivalent
- Short-term on-the-job training

Career Services and outcomes

Career Services provides strategic career guidance, resources, and programs to help students strengthen academic and career goals, establish career plans, develop career-readiness competencies, and make successful career transitions.

Career Services

Career Ready

Career Exploration

Career Resources

Jobs and Internships

Strategies for Jobs

Career Events

Career Ser
Advising

Wages

New workers generally start around $39,214. Normal pay for Multimedia Artists and Animators is $66,859 per year, while highly experienced workers can earn as much as $146,580.

Wages line chart showing percentiles: 10th $39k, 25th $50k, 50th $67k, 75th $103k, 90th $147k.

Post Completions Outcomes

https://seekut.utsystem.edu/UndergradTX

Post Completions Outcomes

https://data.utsystem.edu/data-index/exam-pass-rates

A starting point

The "Aspen Way"

USING LABOR MARKET DATA TO IMPROVE STUDENT SUCCESS

Aligning Talent and Opportunity
AN EMPLOYER GUIDE TO EFFECTIVE COMMUNITY COLLEGE PARTNERSHIP

The Workforce Playbook
A COMMUNITY COLLEGE GUIDE TO DELIVERING EXCELLENT CAREER AND TECHNICAL EDUCATION

1. [Aspen Institute - Labor-Market-Data-Guide](#)
2. [Aspen Institute - The-Employer-Guide Final-for-Approval](#)
3. [Aspen Institute - The-Workforce-Playbook Final](#)

Final Take-Aways

LMI work IS an art and Science

LMI touches ever part of institution from curriculum development/ alignment to budgeting.

LMI is very complex and has massive data to learn, connect before using.

LMI is powerful tool to ensure that institutions are meeting the regional/ State/ Federal level workforce.

LMI is a game changer in data.
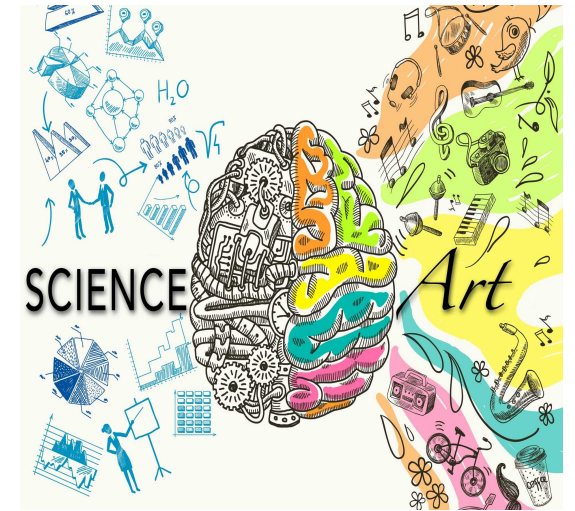
Questions?

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