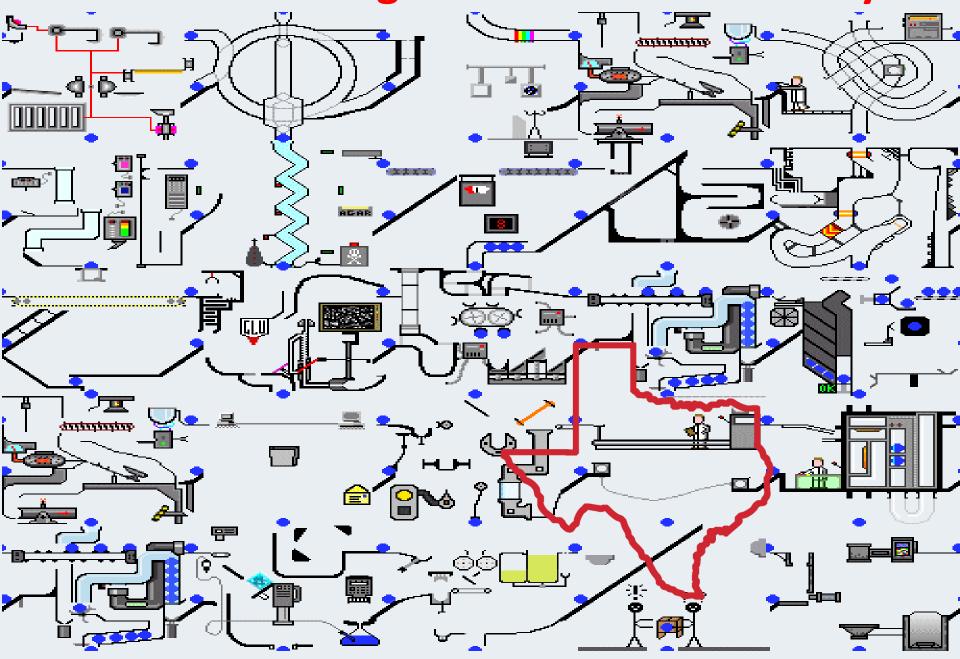
Aligning Education and Economy in Houston

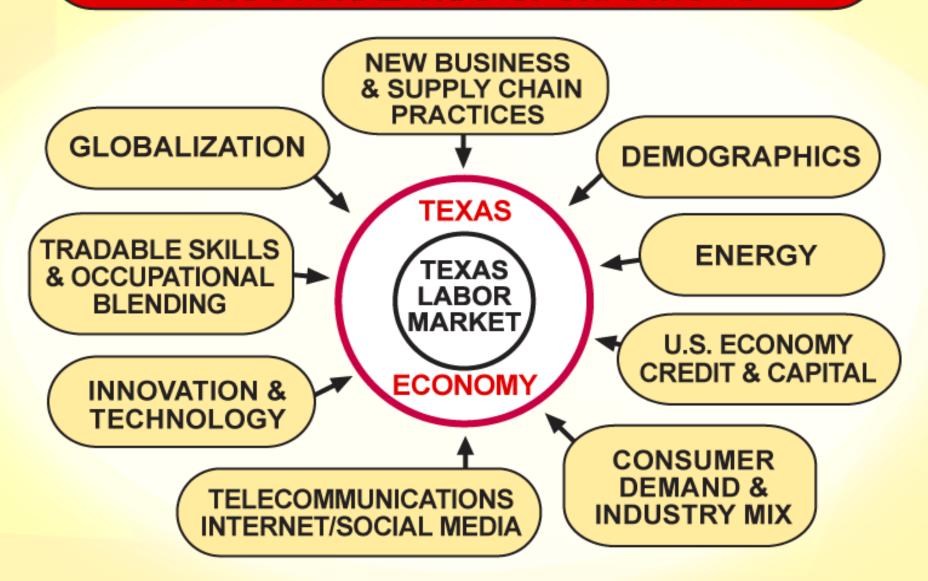
Labor Market & Career Information (LMCI)
Texas Workforce Commission

richard.froeschle@twc.state.tx.us (512) 936-3105

The Interworkings of the Global Economy



The Changing Face of the Texas Labor Market STRUCTURAL TRANSFORMATIONS



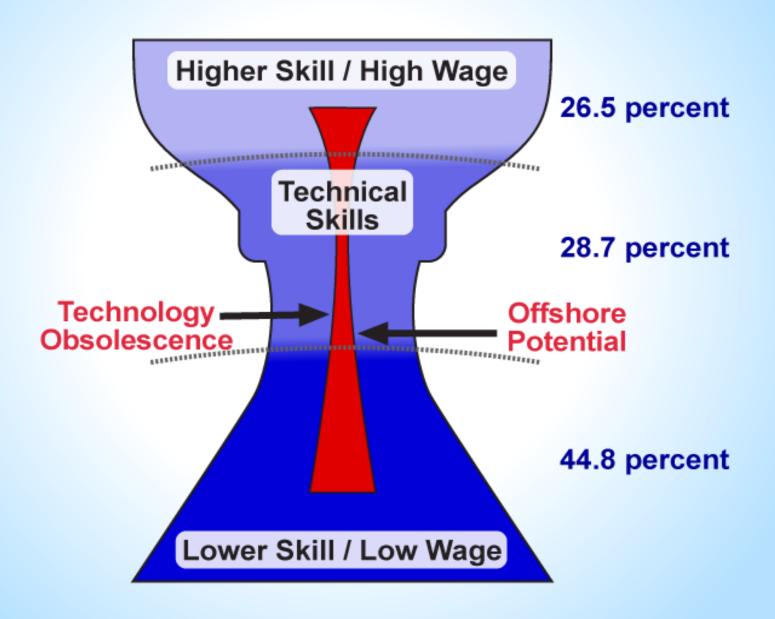
Texas Industry Growth December 2010-11 YOY

Industry	Dec 2011	ABS CHG	PER CHG
Total Nonagricultural	10,649,200	204,500	2.0
Total Nongovernment (aka private)	8,843,900	260,000	3.0
Goods-Producing	1,686,100	59,600	3.7%
Service-Providing	8,963,100	144,900	1.6%
Professional and Business Services	1,343,700	53,100	4.1
Trade, Transportation, and Utilities	2,108,000	45,800	2.2
Leisure and Hospitality	1,060,200	41,200	4.0
Mining and Logging	257,900	40,700	18.7
Education and Health Services	1,443,500	36,900	2.6
Manufacturing	837,400	25,200	3.1
Financial Activities	638,800	18,000	2.9
Other Services	378,700	13,300	3.6
Construction	590,800	-6,300	-1.1
Information	184,900	-7,900	-4.1
Government	1,805,300	-55,500	-3.0

Estimated Occupational Demand for 630 Increase in Support Activities for Mining

SOC Occupational Title	Staffing Pattern	Required Workers
Total, All Workers	100.00%	630
Roustabouts, Oil and Gas	16.4%	104
Service Unit Operators, Oil, Gas & Mining	13.0%	82
Derrick Operators, Oil and Gas	6.2%	39
Rotary Drill Operators, Oil and Gas	5.5%	35
Supervisors, Construction & Extraction Workers	5.1%	32
Truck Drivers, Heavy and Tractor-Trailer	3.8%	24
HelpersExtraction Workers	3.7%	23
General and Operations Managers	3.5%	22
Construction Equipt Operators & Engineers	2.0%	13
Construction Laborers	1.7%	11
Wellhead Pumpers	1.7%	11
Petroleum Engineers	1.5%	10
Geological and Petroleum Technicians	1.5%	10

Labor Market Structure 2016



Growth Occupations (most jobs) for Texas for 2008-2018

Type of Job	Annual Openings	Decade Growth Rate	Required education/training
1. Fast Food Prep Worker	7,845	42%	Short-term On Job Training
2. Elementary School Teacher	6,110	39%	Bachelor's degree
3. Retail Salesperson	5,430	15%	Moderate On Job Training
4. Registered Nurse	5,365	32%	Associate's degree
5. Home Health Aide	5,105	55%	Short-term On Job Training
6. Customer Service Rep	5,005	23%	Moderate On Job Training
7. Waitress/Waiter	4,530	24%	Short-term On Job Training
8. Personal & Home Care Aide	4,400	47%	Short-term On Job Training
9. Office Clerk	3,960	17%	Short-term On Job Training
10. Cashier	3,690	13%	Short-term On Job Training
11. Secondary School Teacher	3,105	31%	Bachelor's degree
12. Construction Worker	3,090	22%	Moderate On Job Training

Fastest Growing Texas Occupations 2018 - Projected

Growth Occupations	Education professed	2009
Growth Occupations	Education preferred	Salary
1. Biomedical Engineers	Bachelor's degree	\$66,729
2. Home Health Aides	Short-term OJT	\$18,849
3. Network Systems & Data		
Communications Analysts	Bachelor's degree	\$76,420
4. Petroleum Engineers	Bachelor's degree	\$126,241
5. Athletic Trainers	Bachelor's degree	\$45,873
6. Personal & Home Care Aides	Short-term OJT	\$16,211
7. Electrical & Electronics Repairers,	Postsecondary	
Powerhouse, Substation & Relay	vocational training	\$55,250
8. Financial Examiners	Bachelor's degree	\$76,359
9. Medical Scientists	Doctoral degree	\$64,386
10. Special Education Teachers	Bachelor's degree	\$49,856

Expected Growth Occupations in STEM in		Texas 2008-2018
Type of Job	Minimum Required	Pay Range
1. Registered Nurse	Associate's degree	\$48,000 - \$75,000
2. Accountant/Auditor	Bachelor's degree	\$40,000 - \$82,000
3. Computer Systems Analyst	Bachelor's degree	\$50,000 - \$97,000
4. Computer Support Specialist	Associate's degree	\$31,000 - \$62,000
5. Software Engineer	Bachelor's degree	\$62,000 - \$113,000
6. Computer Programmer	Bachelor's degree	\$45,000 - \$97,000
7. Financial Manager	Bachelor's degree	\$63,000 - \$138,000
8. Computer Network Admin	Bachelor's degree	\$44,000 - \$82,000
9. Civil Engineer	Bachelor's degree	\$53,000 - \$107,000
10. Pharmacy Technician	Moderate training	\$23,000 - \$34,000
11. Medical Manager	Master's degree	\$53,000 - \$109,000
12. Financial Analyst	Bachelor's degree	\$47,000 - \$96,000
13. Pharmacist	Master's degree	\$90,000 - \$122,000

Texas Online Job Postings Last 90 Days January 2012

Registered Nurses	26,820	Associate's/Bachelor's
Truck Drivers, Heavy & Tractor-Trailer	14,810	Moderate term OJT
Retail Salespersons	11,784	Short term OJT
Computer Systems Analysts	11,731	Bachelor's degree
Supervisors, Retail Sales Workers	11,148	Related Work Experience
Customer Service Representatives	10,307	Moderate term OJT
Physical Therapists	9,445	Master's degree
Web Developers	9,351	Associate's degree
Computer Support Specialists	9,064	Associate's degree
Accountants	7,862	Bachelor's degree
Exec. Secretaries/Admin Assts.	7,558	Related Work Experience
Network Systems Administrators	7,244	Bachelor's degree
Non-technical Sales Reps, Wh & Man	7,098	Related Work Experience
Occupational Therapists	6,468	Master's degree
Supervisors, Food Prep Workers	6,167	Related Work Experience

Houston MSA Online Job Postings Last 90 Days January 2012		
Registered Nurses	5,040	
Computer Systems Analysts	4,068	
Accountants	3,155	
Industrial Engineers	3,052	
Retail Salespersons	3,010	
Supervisors/Managers of Retail Sales Workers	2,906	
Truck Drivers, Heavy and Tractor-Trailer	2,517	

Computer Support Specialists

Web Developers

Sales Managers

Management Analysts

Mechanical Engineers

Customer Service Representatives

Non-technical Sales Reps, Wh & Man

Executive Secretaries & Admin Assistants

Supervisors, Office & Admin Support Workers

2,255

2,244

2,115

2,099

2,040

1,806

1,788

1,755

1,637

Achieve Texas Clusters- Highest Earnings

SOC Title	AAO TOT	HWOL 2011Q4	Wage
Scientific Research & Engineering	9,545	40,835	\$78,549
Information Technology	11,560	116,830	\$69,167
Government & Public Administration	9,040	17,424	\$51,186
Health Science	41,665	152,331	\$46,887
Finance & Insurance	18,795	56,003	\$45,445
Education & Training	43,150	20,486	\$45,285
Business Administration	59,175	99,572	\$40,768
Arts, AV Technology & Communications	8,405	13,019	\$37,463
Architecture & Construction	28,915	20,614	\$37,342
Agriculture and Natural Resources	16,965	5,315	\$32,779
Transportation, Distribution & Logistics	29,350	59,549	\$32,503
Marketing, Sales & Service	64,280	127,546	\$32,264
Manufacturing	26,135	46,883	\$30,678
Human Services	18,345	7,685	\$25,756
Law & Public Safety	15,610	10,138	\$24,212
Hospitality & Tourism	65,030	36,620	\$22,704

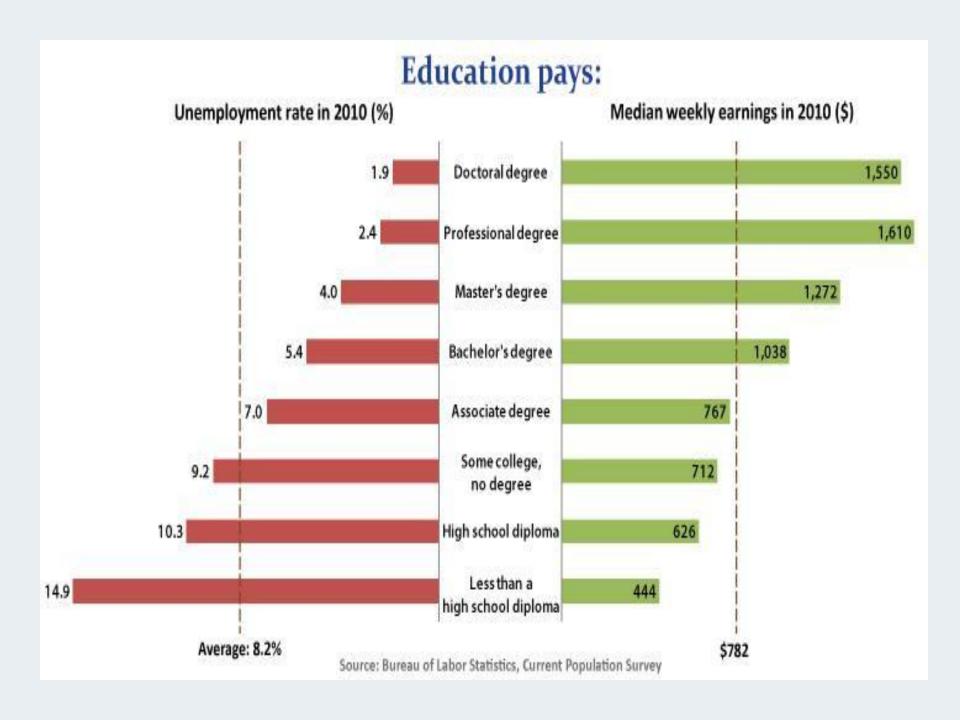
Gulf Coast Targeted Occupations

Gulf Coast Target Occupation List

SOC Occupation Name	SOC Code
Educational Services	
Post-secondary Teacher	251000
Specialty Construction	
Welder, Cutter, Solderer and Brazer	514121
Electrician	472111
Plumber, Pipefitter and Steamfitter	472152
Heating, Air Conditioning & Refrigeration Mechanic	499021
Electrical and Electronic Drafter	173012
Professional & Technical Services	
Computer Systems Analyst	151051
Computer Software Engineer, Applications	151031
Network and Computer Systems Administrator	151071
Computer Software Engineer, Systems	151032
Oil & Natural Gas Extraction and Manufacturing	
Environmental Engineer	172081
Petroleum Engineer	172171
Mining & Geological Engr including Mining Safety Engr	172151
Geoscientist, Except Hydrologist and Geographer	192042
Geological and Petroleum Technician	194041
Mechanical Drafter	173013

Math = Money

The more math you take the more money you can make.



Reality is Relative

2011 Charles Schwab Teens & Money Survey
Poll of Americans ages 13-18

U.S. teenagers were asked:

"How much money do you expect to be making as a starting salary? ...once you are established in a career?"

Reality is Relative

2011 Charles Schwab Teens & Money Survey Poll of Americans ages 13-18

American teens were asked how much money they expected to be earning in their careers.

Average answer:

\$73,000 starting salary \$150,000 established salary

Boys answered: \$79,700 & \$162,300 a year

Girls answered: \$66,200 & \$126,500 a year

Source: Charles Schwab and Boys & Girls Club of America survey conducted with Harris Interactive

For real fun, check out: http://www.lmci.state.tx.us/realitycheck/

Welcome to Reality Check 2011!



Texas Reality Check

Don't know how much money you will need to earn in the future? Don't know which occupation to choose? No problem! Below are three options to help you select the right career for your spending needs.



1 Reality Check

Get a Reality
Check. You will buy
"stuff" for a
sample month. We
total it up for a
year. Then we help
you find careers
that pay what you
need. Let's start.



2 Future Salary

Already know how much money you want to earn? Great. Enter the amount and get information on which occupations pay that much.



3 Occupation Direct

Already know which occupation you want to pursue? Click here to find out how much you can buy with your chosen occupation.



If you need assistance, click the Help button.

Brought to you by LMCI & Texas Workforce

Highest Farning College Programs 2010 Summary

Highest Earning College Programs 2010 Summary		
Bachelor's Degree Graduate Major (TX)	Grads	Earnings
Engineering	4,554	\$51,131
Health Professions & Related Clinical Sciences	7,644	\$50,813
Engineering Technologies/Technicians	951	\$46,075
Computer & Information Sciences	1,356	\$44,408
Business, Management & Marketing	21,153	\$36,261
Mathematics and Statistics	914	\$33,296
Multi/Interdisciplinary Studies	10,082	\$31,888
Physical Sciences	1,103	\$30,828
Liberal Arts & Sciences/Humanities	2,359	\$30,074
Teacher Education & Development /Special Ed	1,505	\$29,594
Agriculture & Agriculture Operations	1,804	\$28,195
Unknown or Undeclared	2,247	\$27,812
Public Administration & Social Service	1,174	\$27,456
Security & Protective Services	2,783	\$27,039

6,227

\$26,795

Social Sciences

Highest Earning College Programs 2010 Detail View

1.19.1.2.2 = 21.11.19 = 2.1.29 : 1.29.21.11.2 =		
Bachelor's Degree Graduate Major (TX)	Grads	Earnings
Petroleum Engineering	271	\$84,961
Quality Control/Safety Technology	30	\$61,113
Chemical Engineering	405	\$60,791
Ocean Engineering	71	\$59,411
Registered Nursing, Nursing Administration	4,745	\$59,359
Electrical & Electronic Engineering	111	\$55,332
Mechanical Engineering	1,224	\$53,307
Construction Engineering	54	\$50,594
Health Diagnostic & Treatment Professions	375	\$49,202
Engineering Science	29	\$48,601

\$48,411

\$47,815

\$47,751

\$47,747

\$47,524

26

189

41

114

64

Computer Systems Networking/Telecomm

Information Technology Admin & Mgmt

Computer Engineering, General

Computer Systems Analysis

Engineering, General

Lowest Earning College Programs 2010 Detail View

Lowest Earling Conege Flograms Zoto Detail view		
Bachelor's Degree Graduate Major (TX)	Grads	Earnings
Pastoral Counseling & Specialized Ministries	60	\$15,205
Germanic Languages & Literature	46	\$17,444
Film/Video and Photographic Arts	142	\$17,619
Dramatic/Theatre Arts & Stagecraft	529	\$18,304
Classical Languages, Literatures & Linguistics	35	\$18,342
English Composition	44	\$19,903
Religious Education	56	\$20,122
Ecology, Evolution and Population Biology	87	\$20,156
Anthropology	460	\$20,310
Radio, Television & Digital Communication	983	\$20,413

Health/Medical Preparatory Programs

Bible/Biblical Studies

Fine and Studio Art

Zoology/Animal Biology

Parks & Recreation Facilities Management

\$20,547

\$20,558

\$20,860

\$21,372

\$21,464

93

139

55

102

1,347

Highest Farning Associate's Degree Programs 201

Highest Earning Associate's Degree Programs 2010									
Associate's Degree Graduate Major (TX)	Grads	Earnings							
Fire Protection	157	\$68,275							
Nuclear Radiologic Technology	33	\$63,908							
Electrical & Power Transmission Installers	41	\$55,835							
Registered Nursing, Nursing Administration	5,203	\$53,648							
Mining and Petroleum Technology	24	\$50,241							
Physical Science Technology	457	\$47,881							
Electromechanical /Instrumentation Technology	397	\$46,151							
Quality Control & Safety Technology	133	\$44,685							
Chemistry	56	\$44,599							
Industrial Production Technology	97	\$44,138							

Construction Engineering Technology

Precision Metal Working

Mechanical Engineering Related Technology

Electrical/Electronics Maintenance Technology

Dental Support Services & Allied Professions

\$41,789

\$41,622

\$39,817

\$37,500

\$37,371

45

29

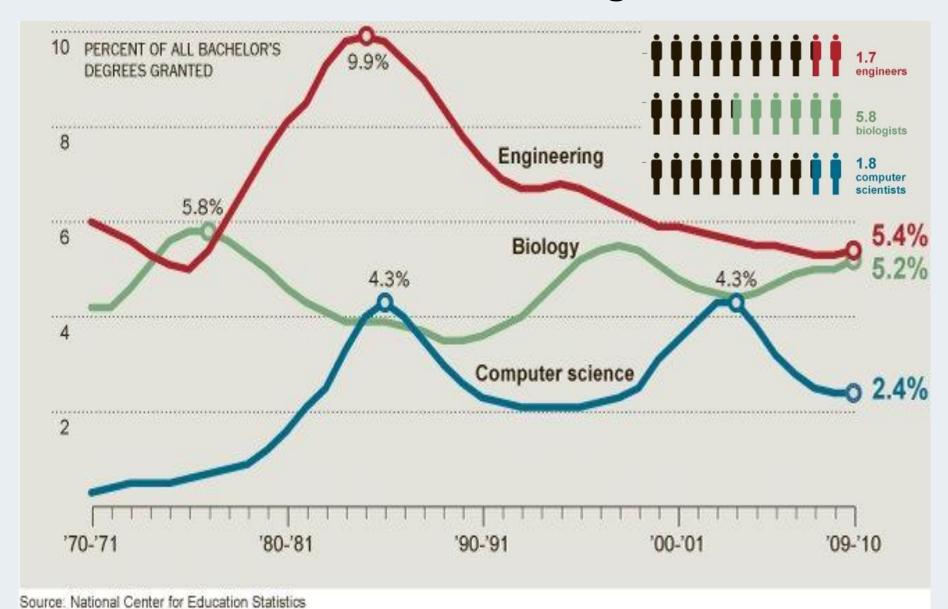
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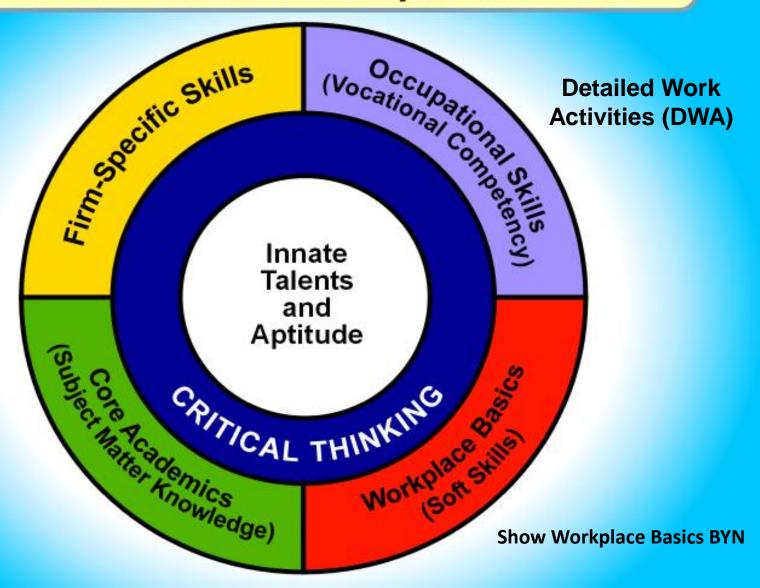
352

Structural Mismatch: 2010 Graduates	Grads	Earnings
Multi-/Interdisciplinary Studies, Other	9,536	\$32,132
Business Administration, Mgmt & Operations	6,056	\$40,473
Psychology, General	5,169	\$22,613
Registered Nursing, Nursing Administration	4,745	\$59,359
Biology, General	4,517	\$21,737
Health and Physical Education/Fitness	3,457	\$23,454
Finance & Financial Mgmt Services	3,269	\$37,160
Accounting & Related Services	3,083	\$33,583
Marketing	2,884	\$31,693
Criminal Justice and Corrections	2,783	\$27,039
English Language and Literature, General	2,453	\$23,124
Liberal Arts, General Studies & Humanities	2,359	\$30,074
History, General	2,245	\$24,016
Political Science & Government	2,208	\$25,037
Public Relations & Advertising	1,772	\$27,579

Trends in U.S. Bachelor's Degrees Awarded



Personal Talent Development Model



Regional employers say they want...

- 1. Good communications skills: Can you.....
- Explain what you're doing (to co-worker or customer)?
- Explain what you need (from a co-worker or customer)?
- Ability to listen to instructions?
- 2. Critical thinking skills (if given a sequence of events, can you determine what will probably happen next)
- 3. Technical knowledge (degrees needed for half of all job openings)
- **4. Can-do attitude / pleasant attitude** (workers who are "engaged" in their work)
- 5. Can you work with people who are of a different age, race, gender and education level than you?

www.texasindustryprofiles.com/apps/swap



SWAP

Strategic Workforce Assessment Program

TWC Home | Contact Us | LMCI Home

INDUSTRY



OCCUPATION



Already have an industry or cluster in mind? To determine what training priorities and skill needs are connected to specific industries, sectors or Governor's industry clusters, start here.

GO

Already have an occupation in mind? To Determine the training program and skill needs connected to any occupation, or group of occupations, including Local Workforce Board Targeted Occupations, start here.

GO

SWAP is designed to simplify the complex challenge of identifying the necessary skills and training programs related to any industry cluster or sector. By answering a few key questions about your customized needs, SWAP organizes and analyzes labor market data to help assess education and employment prospects. Analysis can be done for any single or multiple Texas workforce board area and for multiple time frames. Report outputs provide actionable information, including customized cluster staffing patterns, extensive occupational characteristics data, supply and demand profiles, and skills gap analysis based on detailed work activities (DWA), to inform a wide range of training investment decisions.

Table 2. Formal Higher Education Supply and Demand Reports

				Total Graduates By Occupational Area	3									
soc	SOC Title	Min. Edu. Pref	CIP 4 Digit	CIP Title	2006-2007 Graduates			2007-2008 Graduates			2008-2009 Graduates			Avg Annual Job Openings
					2 yr	4 yr	Total Grad	2 yr	4 yr	Total Grad	2 yr	4 yr	Total Grad	2008-2018
29-1111	Registered Nurses	Associate degree	5116	Nursing	254	0		298	0		280	0		
					254	0	254	298	0	298	280	0	280	1,065
29-1126	Respiratory Therapists	Associate degree	5109	Allied Health Diagnostic, Intervention, and Treatment Professions	259	0		135	0		223	0		
					259	0	259	135	0	135	223	0	223	55
29-2011	Medical and Clinical Laboratory Technologists	Bachelor's degree	5108	Allied Health and Medical Assisting Services	119	0		94	0		183	0		
			5110	Clinical/Medical Laboratory Science and Allied Professions	15	21		7	23		9	22		
					134	21	155	101	23	124	192	22	214	75
29-2012	Medical and Clinical Laboratory Technicians	Associate degree	5110	Clinical/Medical Laboratory Science and Allied Professions	15	21		7	23		9	22		
					15	21	36	7	23	30	9	22	31	80
29-2031	Cardiovascular Technologists and Technicians	Associate degree	5109	Allied Health Diagnostic, Intervention, and Treatment Professions	259	0		135	0		223	0		
	N				259	0	259		0	135	223	0	223	20
29-2034	Radiologic Technologists and Technicians	Associate degree	5109	Allied Health Diagnostic, Intervention, and Treatment Professions	259	0		135	0		223	0		
					259	0	259	135	0	135	223	0	223	95
29-2071	Medical Records and Health Information Technicians	Associate degree	5107	Health and Medical Administrative Services	77	1		309	13		218	6		
					77	1	78	309	13	322	218	6	224	90

Five Major Data Challenges for S/D Analysis

- ➤ To what extent should higher education program investments be driven by market demand?
- Should "market demand" be viewed as a statewide or a regional concept? e.g. where do you count TAMU and UT@Austin grads?
- ➤ Which college majors prepare students for which occupations? The 'Humanities' Paradox
- ➤ How many is enough? What is the target ratio of graduates to expected job openings?
- >SOC to CIP gives a different look than CIP to SOC

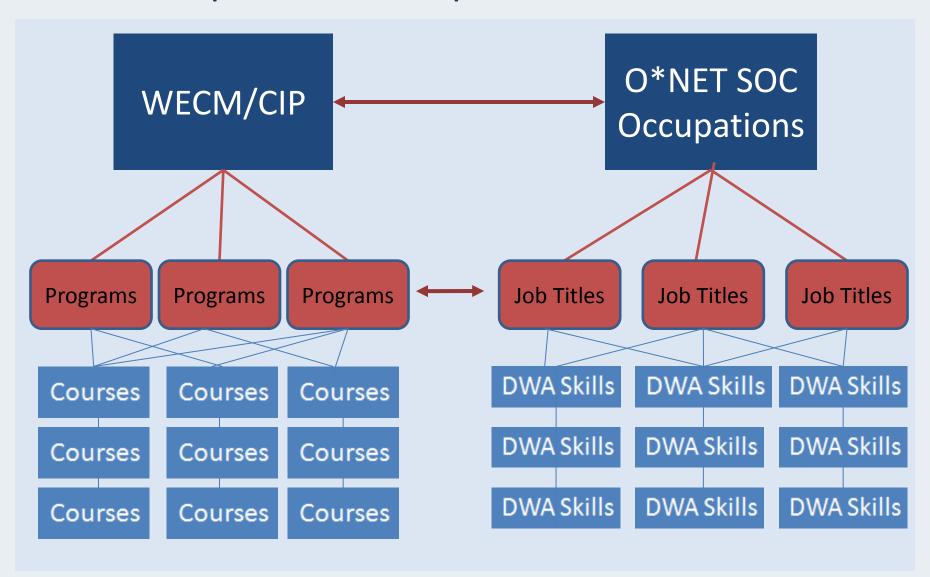
Detailed Work Activity Common Language for Skill Transferability

			Eco	nomi	c Clus	ter			
Occ1				Occ	2		Occ3	Occ4	Occ5
Job 1	Job 2	Job 1	Job 2	Job 3	Job 4	Job 5	Job 1	Job 1	Job 1
DWA 698	DWA 431							DWA 1089	DWA 57
DWA 333	DWA 510	DWA 890					DWA 17	DWA 109	DWA 85
DWA 1098	DWA 980	DWA 333				DWA 1098	DWA 10	DWA 27	DWA 12
DWA 650	DWA 5	DWA 9	DWA 690		DWA 1089	DWA 80	DWA 650	DWA 111	DWA 1020
DWA 230	DWA 109	DWA 3	DWA 109	DWA 312	DWA 109	DWA 999	DWA 922	DWA 691	DWA 109
DWA 1	DWA 12	DWA 777	DWA 5	DWA 290	DWA 1000	DWA 1222	DWA 12	DWA 601	DWA 5

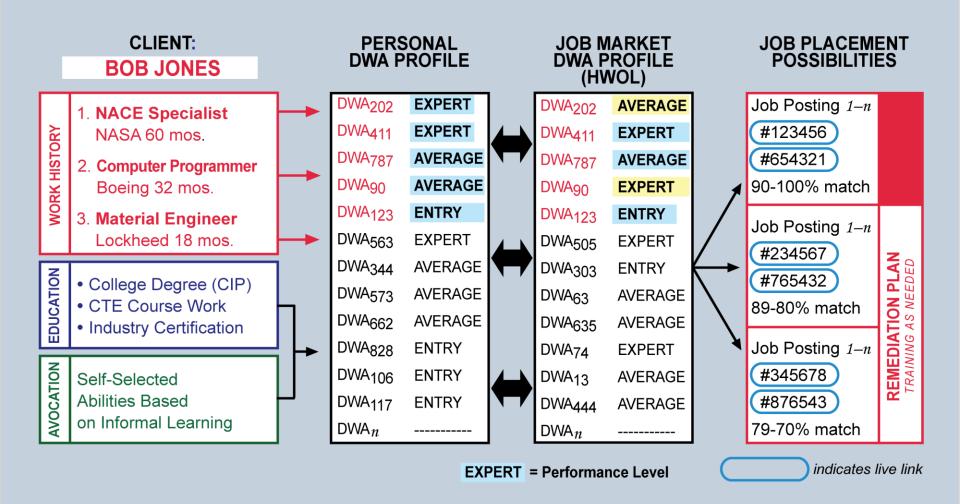
Successful human capital growth builds on common connections.

Example: DWA 109 is shared by 4 of 5 occupations and 5 Jobs.

Education Content & Industry Jobs Alignment Component Description and Crosswalk



Worker Capabilities To Job Requirements DWA Placement Model



Assessing Skills Gaps through DWAs: Matching Worker Capabilities with Employer Hiring Requirements

I want someone who can...

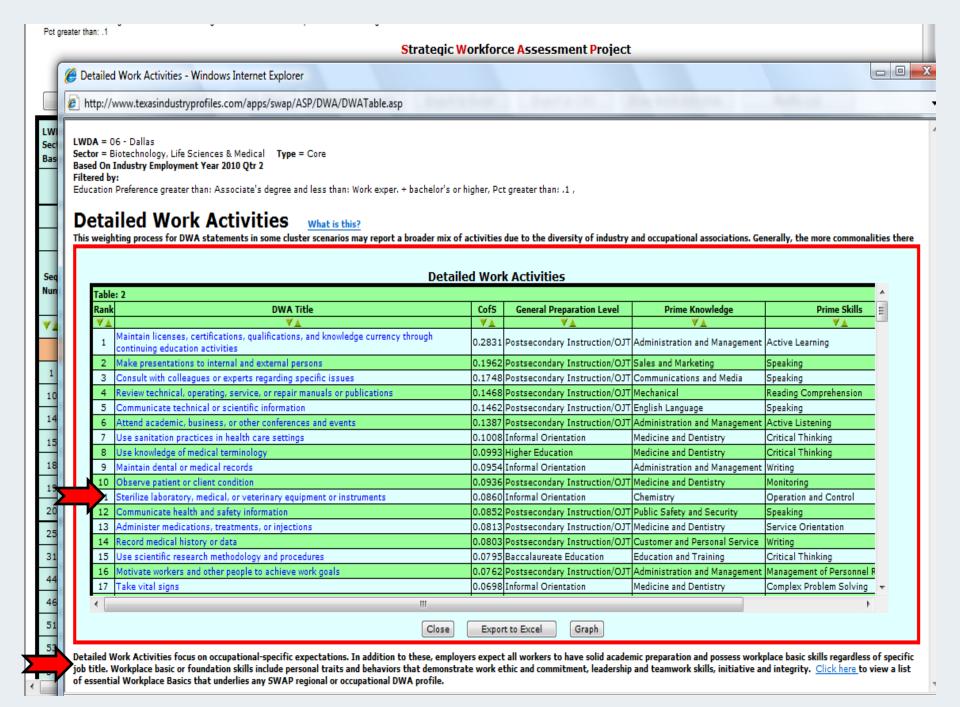
- 1. Operate power generation equipment
- 2. Read technical drawings
- 3. Collect samples for testing
- 4. Control operation of compressors
- 5. Adjust production equipment/machinery setup
- 6. Analyze malfunctioning electrical equipment
- 7. De-energize high tension power lines for repairs
- 8. Erect power or communication poles or towers

I can offer the ability to ...

- 1. Operate power generation equipment
- 2. Read technical drawings
- 3. Collect samples for testing
- 4. Control operation of compressors

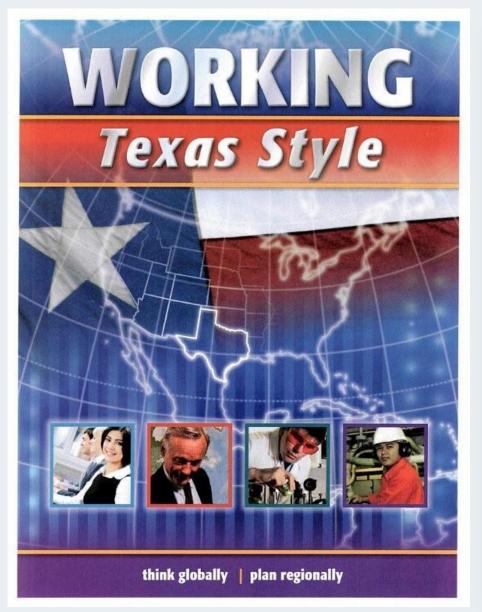
DWA-based Skill Acquisition

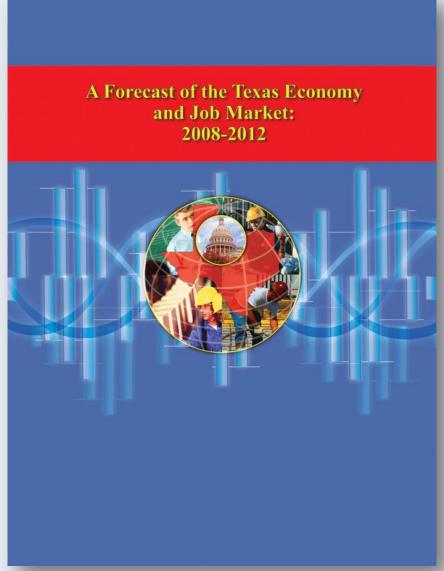
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- 6. Analyze malfunctioning electrical equipment
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- 8. Erect power or communication poles or towers



LMCI Main Web Page







www.lmci.state.tx.us

There is much more story to tell, but this version is over

Thank you!

richard.froeschle@twc.state.tx.us