

# **STEM & Health Care Occupations in Wyoming: Now and Possibilities for the Future**

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Glover, Research & Planning, Wyoming  
Department of Workforce Services  
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Casper College  
February 9, 2012

Available online at  
<http://doe.state.wy.us/lmi/presentations.htm>

# RESEARCH & PLANNING

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**What We Do:** R&P collects, analyzes, and publishes timely and accurate labor market information (LMI) meeting established statistical standards.

**Our Customers:** LMI makes the labor market more efficient by providing the public and the public's representatives with the basis for informed decision making."

**One of our goals is to improve return on investment  
for employment training programs**



# How are STEM Occupations Defined?

## **Educational Program:**

- All mathematics, chemistry, computer science, physics, and engineering disciplines

## **Occupational Assignment:**

- High degree of knowledge, skills, and abilities in the areas of science, technology, mathematics, and analytical reasoning

## **These Create:**

- Diverse occupations found across occupational groups and industries

Source: U.S. Employment and Training Administration O\*NET  
(<http://www.onetonline.org/find/stem?t=0>)

# Examples of STEM Occupations

- **Accountants**
- **Civil Engineers**
- **Computer Programmers**
- **Dietitians and Nutritionists**
- **Farm and Ranch Managers**
- **Food Science Technicians**
- **Forest and Conservation Workers**
  - **Graphic Designers**
  - **School Psychologists**
- **Wind Turbine Service Technicians**

Source: O\*NET OnLine (<http://www.onetonline.org/find/stem?t=0&g=Go>)

# Selected STEM Occupations and Employment in Wyoming, 2010

SOC <sup>a</sup> Code	Occupation	2010 Employment
<b>11-0000</b>	<b>Management Occupations</b>	<b>1,965</b>
11-9199	Managers, All Other	874
11-9021	Construction Managers	392
11-3051	Industrial Production Managers	194
<b>13-0000</b>	<b>Business and Financial Operations Occupations</b>	<b>3,232</b>
13-2011	Accountants and Auditors	1,717
13-1199	Business Operations Specialists, All Other	895
13-1041	Compliance Officers, Except Agriculture, Construction, Etc	310
<b>15-0000</b>	<b>Computer and Mathematical Occupations</b>	<b>882</b>
15-1121	Computer Systems Analysts	382
15-1132	Software Developers, Applications	185
15-1131	Computer Programmers	108
<b>17-0000</b>	<b>Architecture and Engineering Occupations</b>	<b>4,590</b>
17-2051	Civil Engineers	854
17-2171	Petroleum Engineers	551
17-2081	Environmental Engineers	336
<b>19-0000</b>	<b>Life, Physical, and Social Science Occupations</b>	<b>3,723</b>
19-4093	Forest and Conservation Technicians	766
19-2041	Environmental Scientists & Spec	428
19-1023	Zoologists and Wildlife Biologists	329
<b>25-0000</b>	<b>Education, Training, and Library Occupations</b>	<b>938</b>
25-1071	Health Specialties Teachers, Postsecondary	135
25-9021	Farm and Home Management Advisors	128
25-1022	Mathematical Science Teachers, Postsecondary	113
<b>27-0000</b>	<b>Arts, Design, Entertainment, Sports, and Media Occ</b>	<b>261</b>
27-1024	Graphic Designers	261
<b>29-0000</b>	<b>Healthcare Practitioners and Technical Occupations</b>	<b>132</b>
29-1031	Dietitians and Nutritionists	83
29-2051	Dietetic Technicians	39
29-2033	Nuclear Medicine Technologists	10
<b>33-0000</b>	<b>Protective Service Occupations</b>	<b>83</b>
33-3031	Fish and Game Wardens	83
<b>35-0000</b>	<b>Food Preparation and Serving Related Occupations</b>	<b>3,272</b>
35-1012	First-Line Supervisors/Managers of Food Preparation	2,085
35-2012	Cooks, Institution and Cafeteria	1,187
<b>43-0000</b>	<b>Office and Administrative Support Occupations</b>	<b>ND</b>
43-9111	Statistical Assistants	ND
<b>45-0000</b>	<b>Farming, Fishing, and Forestry Occupations</b>	<b>86</b>
45-4022	Logging Equipment Operators	25
45-4021	Fallers	20
45-2021	Animal Breeders	14
<b>49-0000</b>	<b>Installation, Maintenance, and Repair Occupations</b>	<b>1,504</b>
49-3023	Automotive Service Technicians and Mechanics	1,392
49-3011	Aircraft Mechanics and Service Technicians	101
49-2091	Avionics Technicians	12
<b>51-0000</b>	<b>Production Occupations</b>	<b>673</b>
51-8091	Chemical Plant and System Operators	591
51-9011	Chemical Equipment Operators and Tenders	50
51-3092	Food Batchmakers	26
<b>53-0000</b>	<b>Transportation and Material Moving Occupations</b>	<b>ND</b>
53-6051	Transportation Inspectors	ND

<sup>a</sup>Standard Occupational Classification System.

# Selected Health Care Occupations and Employment in Wyoming, 2010

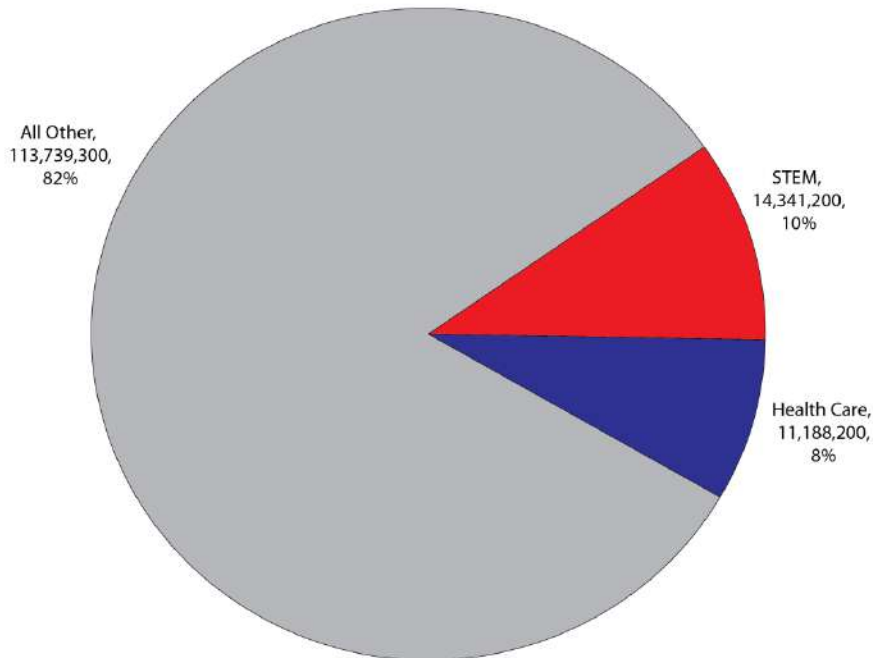
SOC <sup>a</sup> Code	Occupation	2010 Employment
<b>29-0000</b>	<b>Healthcare Practitioners and Technical Occupations</b>	<b>13,685</b>
29-1111	Registered Nurses	5,150
29-2061	Licensed Practical and Licensed Vocational Nurses	782
29-2041	Emergency Medical Technicians and Paramedics	608
29-1051	Pharmacists	504
29-2052	Pharmacy Technicians	483
29-1123	Physical Therapists	458
29-1062	Family and General Practitioners	429
29-2037	Radiologic Technologists and Technicians	408
29-2012	Medical and Clinical Laboratory Technicians	389
29-2021	Dental Hygienists	355
<b>31-0000</b>	<b>Healthcare Support Occupations</b>	<b>6,392</b>
31-1012	Nursing Aides, Orderlies, and Attendants	3,155
31-1011	Home Health Aides	991
31-9091	Dental Assistants	521
31-9092	Medical Assistants	509
31-9799	Healthcare Support Workers, All Other	287
31-9094	Medical Transcriptionists	230
31-9096	Veterinary Asst. and Laboratory Animal Caretakers	218
31-2021	Physical Therapist Assistants	131
31-2022	Physical Therapist Aides	119
31-9093	Medical Equipment Preparers	88

<sup>a</sup>Standard Occupational Classification System.

# STEM, Health Care, and All Other Nonagricultural Wage and Salary Employment, 2010

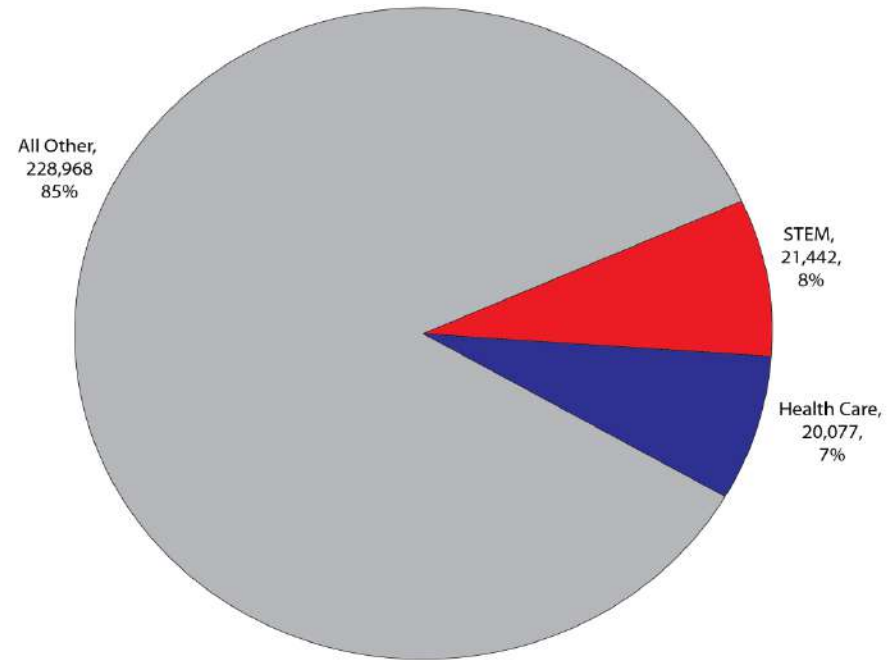
## U.S. Total Employment

n = 268 million



## Wyoming Total Employment

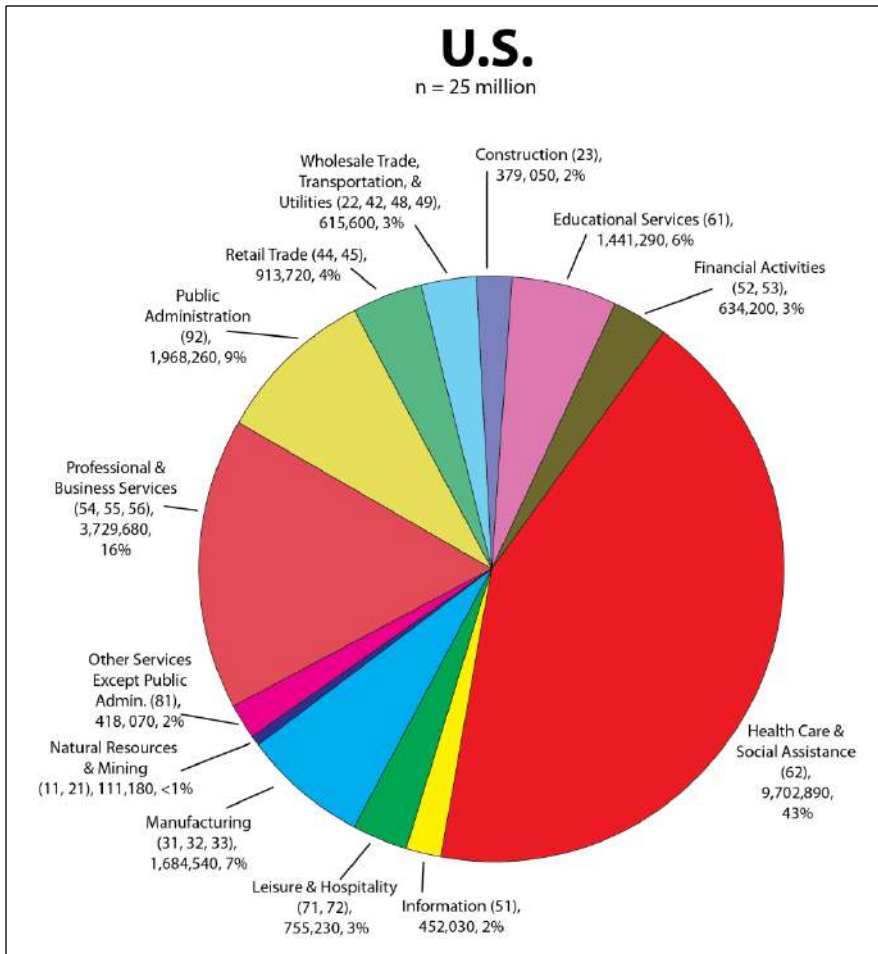
n = 270,000



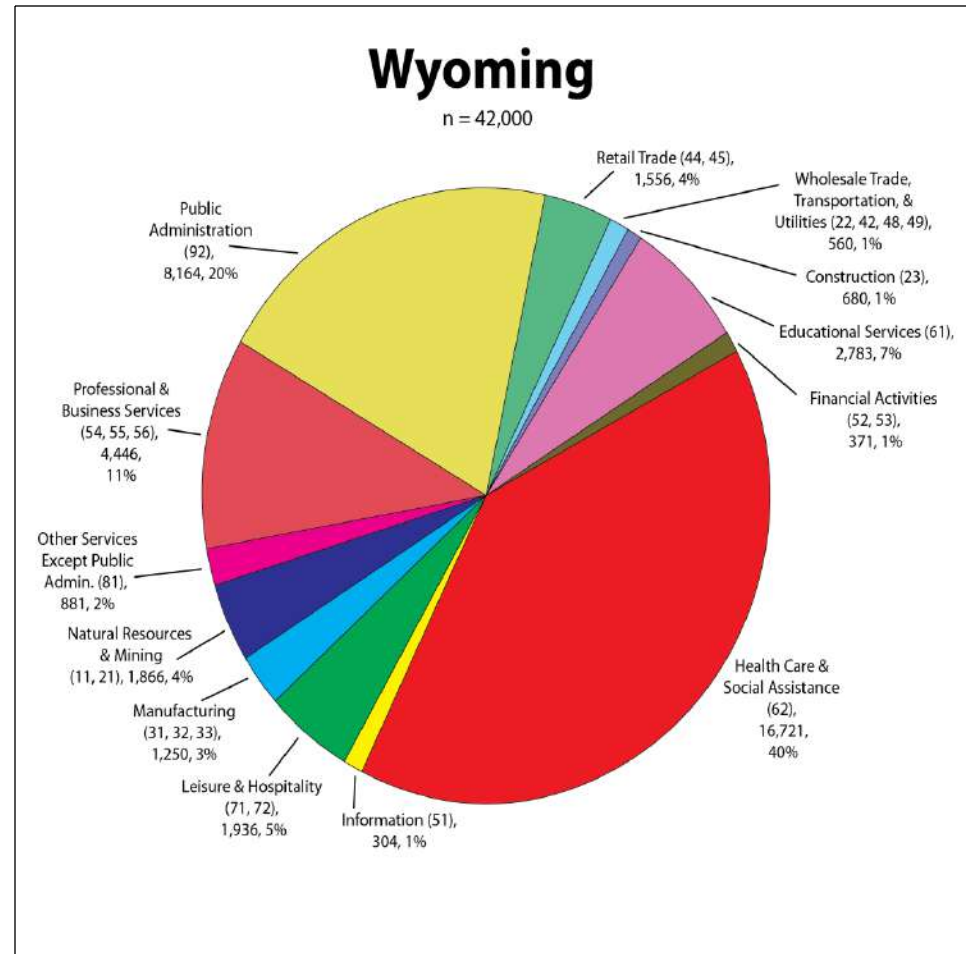
Source: Occupational Employment Statistics, U.S. Bureau of Labor Statistics  
(<http://bls.gov>)

Source: Occupational Employment Statistics, Research & Planning, Wyoming Department of Workforce Services  
(<http://doe.state.wy.us/LMI/oes.htm>)

# STEM & Health Care Employment by Industry, 2010



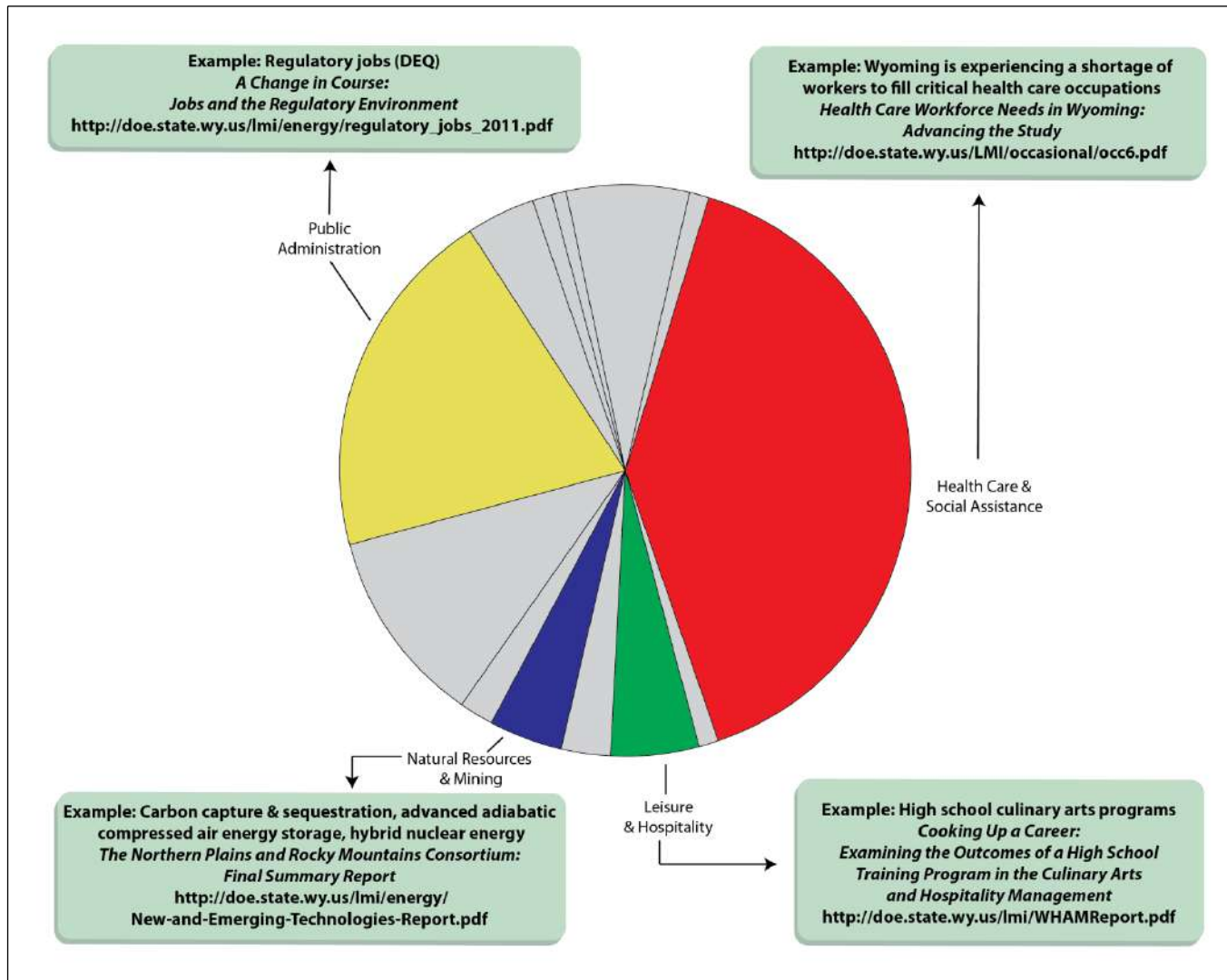
Source: Occupational Employment Statistics, U.S. Bureau of Labor Statistics  
(<http://bls.gov>)



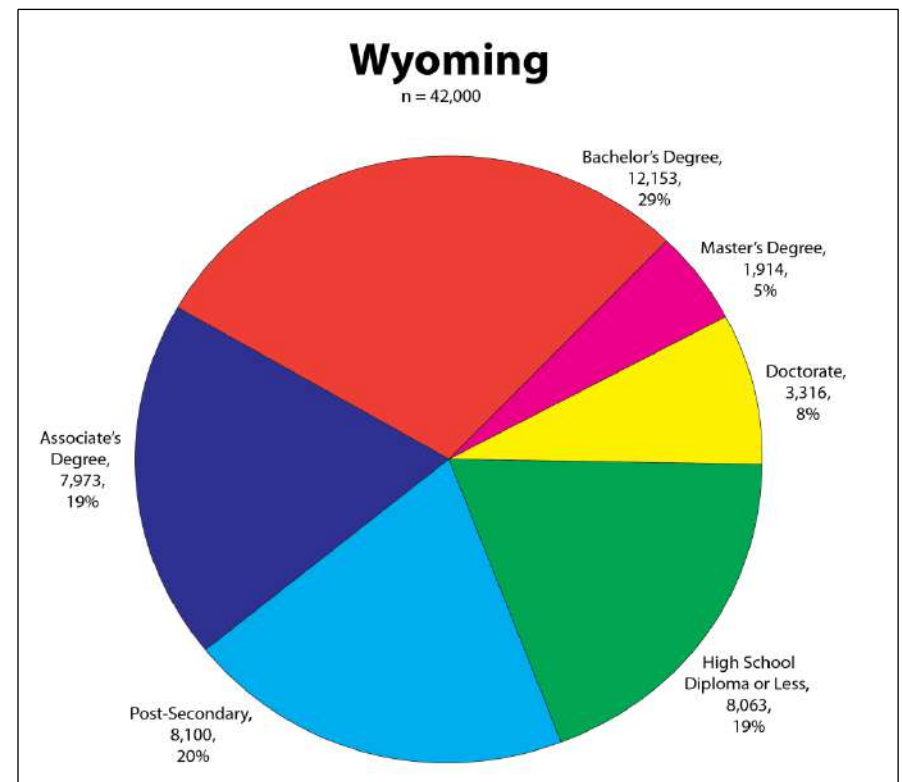
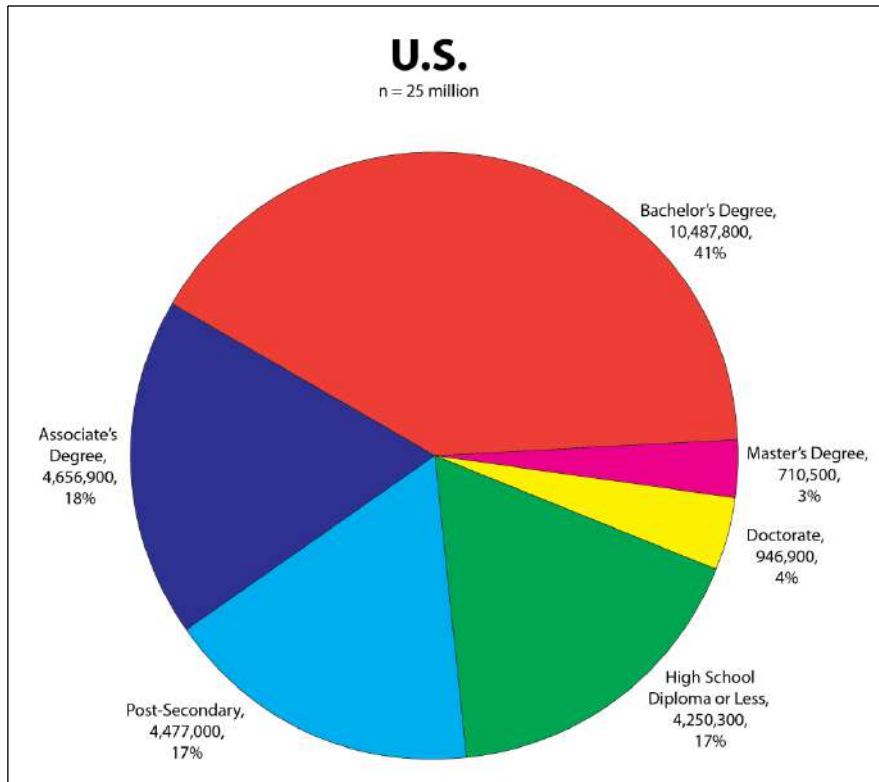
Source: Occupational Employment Statistics, Research & Planning, Wyoming Department of Workforce Services  
(<http://doe.state.wy.us/LMI/oes.htm>)



# STEM & Health Care in Wyoming: Suggestions for Further Reading



# STEM & Health Care by Typical Education, 2010



Source: Occupational Employment Statistics, U.S. Bureau of Labor Statistics (<http://bls.gov>)  
O\*NET Online (<http://www.onetonline.org/>)

Source: Occupational Employment Statistics, Research & Planning, Wyoming Department of Workforce Services (<http://doe.state.wy.us/LMI/oes.htm>)  
O\*NET Online (<http://www.onetonline.org/>)

# Wage Comparison for STEM, Health Care, & All Other Occupations by Typical Education

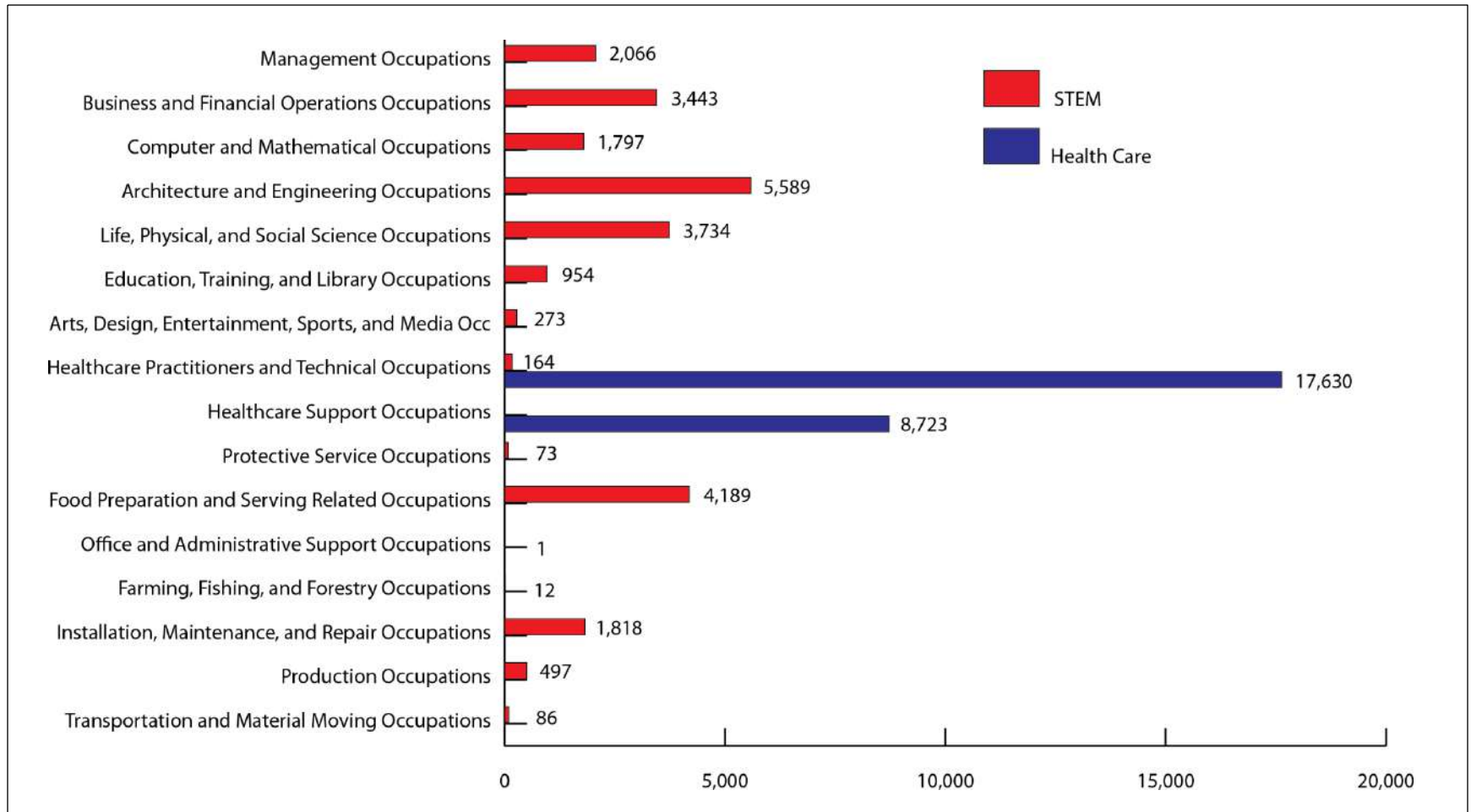
Average Annual Wage by Education Level for Wyoming and the U.S., 2010

Education Level	U.S. Annual Wage	Wyoming Annual Wage
<b>STEM</b>		
High School Diploma or Less	\$32,564	\$33,054
Post Secondary	\$41,746	\$40,801
Associates	\$70,289	\$57,409
Bachelors Degree or More	\$79,610	\$67,009
<b>Health Care</b>		
High School Diploma or Less	\$27,978	\$28,254
Post Secondary	\$31,700	\$30,556
Associates	\$63,817	\$55,490
Bachelors Degree or More	\$87,693	\$107,929
<b>All Other</b>		
High School Diploma or Less	\$31,239	\$32,734
Post Secondary	\$45,356	\$45,966
Associates	\$47,557	\$45,538
Bachelors Degree or More	\$71,800	\$60,318

Source: Occupational Employment Statistics, Research & Planning, Wyoming Department of Workforce Services (<http://doe.state.wy.us/LMI/oes.htm>)  
O\*NET Online (<http://www.onetonline.org/>)

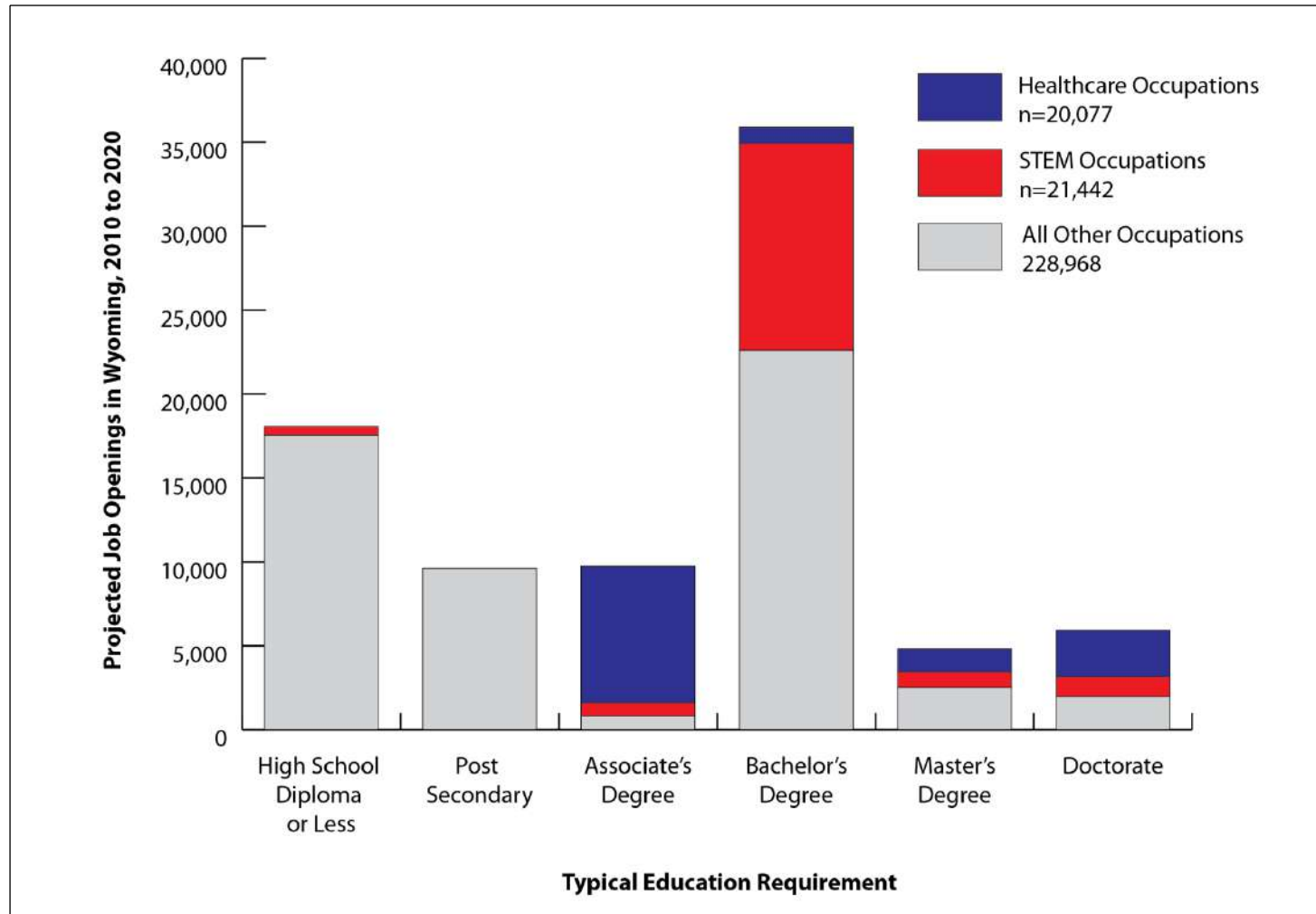
# Projected Openings for STEM and Health Care Occupations, 2010 to 2020

Total Openings due to Industry Growth and Replacement Need by Major Occupational Group



# The Incentive Structure

Projected Job Openings in Wyoming for Jobs with Annual Earnings of \$50,000 or More<sup>a</sup>, 2010-2020



<sup>a</sup>Wages in 2010.

Source: Wyoming's Short-Term (2010-2012) and Long-Term (2010-2020) Industry and Occupational Projections (<http://doe.state.wy.us/lmi/projections.htm>)

# Demographic and Social Shocks

**Projections are based on current workforce trends. They cannot account for these types of demographic and social shocks:**

- An aging baby boom generation
- Substantial federal investments and initiatives
- Changes in technology in areas such as health care and energy

# Demographic and Social Shocks

## An Aging Population

- In 2010, 1 in 4 people living in Wyoming was a baby boomer born between 1946 and 1964<sup>a</sup>
- Several industries dominated by STEM jobs in Wyoming are populated with a high percentage of older workers
  - Education, Public Administration, and Health Care & Social Assistance all have a large proportion of workers who will reach the traditional retirement age of 65 in the next 10 years.

**Does Wyoming's workforce development system have the capacity to meet this need?**

<sup>a</sup>Source: U.S. Census Bureau

# Demographic and Social Shocks

## Health Information Technology

- “A large infusion of federal funds to support health information technology (HIT) development will likely alter the structure of the health care industry in Wyoming, as the health care delivery system evolves from paper records to electronic records.”  
(<http://doe.state.wy.us/lmi/1210/a1.htm>)

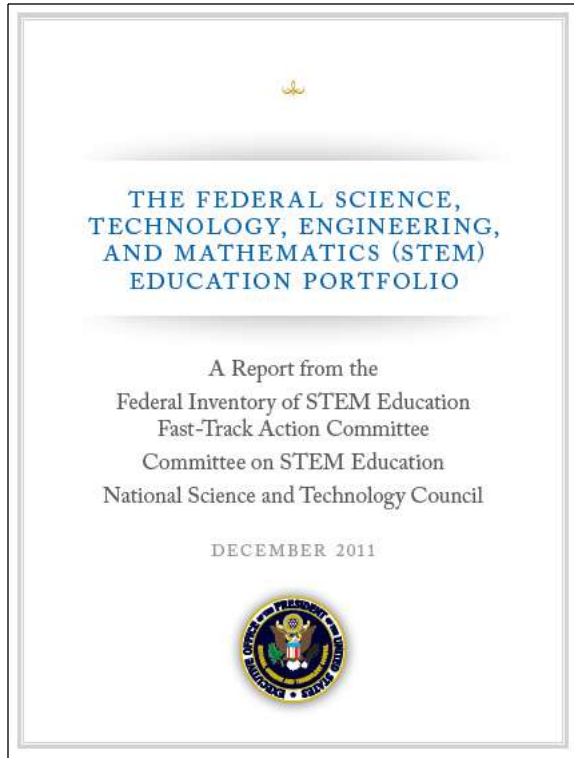
## Technological Changes in Wyoming's Energy Sector

- “... even those technologies with the most benevolent appearance may have side effects needing regulatory attention. For instance, oil used in wind generator gear boxes and water returned from ground source heat pump systems are likely to require regulatory oversight.”  
([http://doe.state.wy.us/lmi/energy/regulatory\\_jobs\\_2011.pdf](http://doe.state.wy.us/lmi/energy/regulatory_jobs_2011.pdf))

**What effects will these new technologies have on Wyoming's labor force?**



# Other Resources



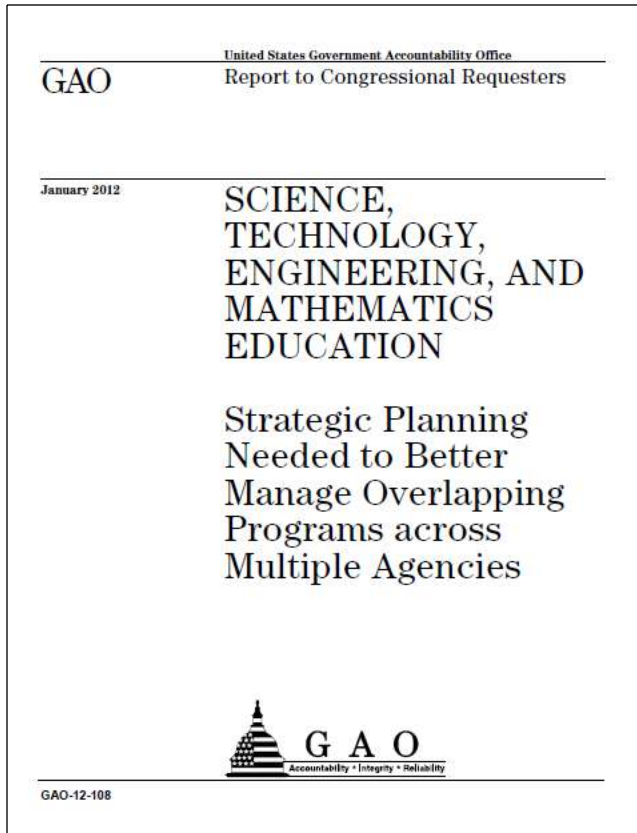
The Federal Science, Technology, Engineering, and  
Mathematics (STEM) Education Portfolio

*A Report from the Federal Inventory of STEM Education  
Fast-Traction Action Committee  
Committee on STEM Education  
National Science and Technology Council*

December 2011

[http://www.whitehouse.gov/sites/default/files/microsites/ostp/  
costem\\_\\_federal\\_stem\\_education\\_portfolio\\_report.pdf](http://www.whitehouse.gov/sites/default/files/microsites/ostp/costem__federal_stem_education_portfolio_report.pdf)

# Other Resources



United States Government Accountability Office

Report to Congressional Requesters

*Science, Technology, Engineering, and Mathematics  
Education*

*Strategic Planning Needed Better Manager Overlapping  
Programs across Multiple Agencies*

January 2012

<http://gao.gov/assets/590/587839.pdf>

# For More Information

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