Work in New Mexico
New Mexico Career Clusters Guidebook

www.workinnewmexico.gov

August 29, 2006

The New Mexico Career Clusters Guidebook was prepared for the Governor’s Workforce Coordination and Oversight Committee by Public Works LLC.

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Do you want to be a success, earn more money, work at a job you love, and be appreciated for it?

New Mexico Career Clusters puts you in charge.

The state is developing new education and training programs in many different areas, as you can see from this Guidebook.

- Discover your interest
- Find out more about it
- Learn the skills to fulfill your dreams

If you work hard and stay in school you’ll earn higher salaries—much higher—than if you don’t. Don’t be left without a great future.

Stay in school, graduate from high school, earn an industry credential or college degree. See what a difference it will make to you and your family!
Are You Ready?
New Mexico is on the Move

New Mexico’s economy is moving, and you can be part of it.

This guidebook will help you understand how education and training for the 7 New Mexico Career Clusters available in public schools, through local Workforce Connection Centers, and in colleges and universities can help you earn new skills and get started on the career of your dreams.

Great careers are available all around the state for workers who have the skills and the motivation to succeed in today’s 21st century marketplace.

We’re adding to jobs in our heritage industries like arts, ranching, agriculture, oil and gas and construction with new technologies and new industries in film and digital media, high tech manufacturing, food processing, clean energy and aerospace.

Upham, New Mexico is home to the new Spaceport, which will take tourists into space. We’re building ultralight aircraft and solar energy panels in Albuquerque. In Chimayo, Clovis and Mora, we’re manufacturing native goods. And films are being made across the state. New Mexico is a world leader in tourism and arts and crafts and in developing and using clean energy technology. Our building trades and construction are booming to accommodate new growth.

Do You Want to Breeze into a Career?

- Arts and Entertainment
- Business Services
- Communications and Information
- Energy and Environmental Technologies
- Engineering, Construction, and Manufacturing
- Health and Biosciences
- Hospitality and Tourism

These industries are part of 7 new Career Clusters that define the economy we want to build for New Mexico.
“In the past we’ve never linked our colleges and universities with economic development.

We’re approaching education from a business perspective—identifying which industries are growing and the skills needed to support them.”

Bill Richardson, Governor

Why Should This Guidebook Matter to You?

New Mexico Career Clusters is breaking new ground. It’s a government initiative that brings together all of the state’s workforce partners:

- Youth and Family Services
- Colleges and Universities
- Economic Development
- Public Schools
- Labor and Employment
- Social Services
- Workforce Training

These agencies are working together and with people in the community for the first time in state history to plan for a better New Mexico economy and create good jobs and the opportunity for a well-paying career for you and your family.

What are Career Clusters?

Career clusters are groups of related industries that share common resources, like raw materials or equipment, and employ workers who have similar interests and abilities. New Mexico has identified 7 strategic market sectors or “clusters” as the foundation for its future economy—its careers and businesses.

The following 7 New Mexico career clusters help the state prepare workers who have the talent, skills and passion to work in the state’s top industries:

- Arts and Entertainment
- Business Services
- Communications and Information
- Energy and Environmental Technologies
- Engineering, Construction and Manufacturing
- Health and Biosciences
- Hospitality and Tourism
The New Mexico Career Clusters Guidebook does three things:

- Highlights the businesses and industries that are growing in New Mexico and that provide good career opportunities;
- States how much education you’ll need for jobs in those industries;
- Shows which educational programs or “career pathways” are available to train you to work in those jobs.

Are You a Student or a Public School Counselor?

The Career Clusters Guidebook helps you learn more about a career by describing the kinds of work it entails.

You may be interested in computers. The Information and Communications section of the guidebook describes several different career paths working with computers and shows you how much education you’ll need and how much money you might make in different types of jobs.

Your teachers and counselors will make sure you take the courses in your career pathway that will lead to a high school diploma and an industry certificate or college degree.

Are You an Educator?

The Guidebook lists the career pathways that New Mexico has identified to meet its economic demand.

Use the Guidebook to focus your teaching in career pathways that support the 7 strategic Career Clusters.

New Mexico’s higher education and public education departments will be working with teachers and faculty to develop new curricula and standards.
“For communities to move forward they must look at what they do have and not be deterred by what they don’t have.

The Rural Revitalization Project is helping communities conduct interest inventories—not needs assessments.”

Jim Holloway
Assistant Secretary for Rural Education, Public Education Department

Are You a Worker or an Employer?

In today’s world all adult workers require training and re-training throughout their lifetimes.

New Mexico Career Clusters guides the makeup of education and training programs available in the state’s Workforce Connection Centers, in community colleges, GED and adult literacy programs, and through TANF case managers so that workers are prepared for the actual challenges they will face on the job and employers can hire the highly skilled workers that make their businesses successful.

Use the Career Guidebook to learn about education and training pathways in career areas that interest you.

Are You an Employment Counselor?

Your clients need to have options and information that move them not just into the next job but into a satisfying and productive career.

The state’s Workforce Connection Center and Department of Labor Employment Counselors are the front-line providers who make that chance possible for many New Mexicans through their comprehensive assessment, counseling, funding and referral services.

This Guidebook lists the high-wage, high-demand industry sectors and training areas that are our state government’s and businesses’ highest priority for new workers, and as such helps you help your customers make the right career choice.
How Can This Guidebook Help You Explore Career Options?

Q. What are Three Things that This Guidebook Can Answer?

A. What are the top clusters for employment in New Mexico in the next ten years?
   What are the career paths that are available to help you?
   What are some examples of jobs that you could do?

Q. Do You Know Where to Find More Information?

A. www.workinnewmexico.gov

Q. Are You an Adult Who Wants to Upgrade Your Skills or Change Jobs?

A. Go to page 70 of this report to learn how career pathways for adults will be available at Workforce Connection Centers and in Community colleges.

Q. What are the New Mexico Skills for Life?

A. Learn about "life skills" that all New Mexicans should have and that will be taught in our public schools on page 13.
Q. Do You Want to Know What the State is doing to Promote Hot Industries?

A. Go to page 77 of this report to learn about the state’s plans to better align education and economic development.

Q. How Can You Learn More about the Jobs and Salaries Listed in this Guidebook?

A. The Occupational Information Network Online: http://online.onetcenter.org (for national data)
New Mexico Workforce Connection: http://www.jobs.state.nm.us/ (for New Mexico data)
New Mexico Department of Labor: http://www.dol.state.nm.us/dol_lmif.html (for the latest New Mexico salary projections)

Q. How Should You Use the Salary Information Provided in the Guide?

A. The salaries listed throughout the guidebook are based on national averages. New Mexico salaries may be lower. New Mexico enjoys a lower cost of living than other states, which means salaries are lower in some fields. Salaries generally differ from rural to urban areas as well, again based on cost of living. Salaries can also differ from large businesses to small businesses. Market conditions drive salaries—so they can change rapidly due to supply and demand. To get a better idea of how much you might earn in a given career in New Mexico, interview someone to learn about salary ranges in that community.

Q. What is the Governor’s Workforce Coordination and Oversight Committee?

A. On page 68 of this report find the members of the Committee and a description of their responsibilities.

Q. Where Can You Learn More about Career Pathways?

A. Page 70 of the report describes career pathways in detail.
Why are Skills for Life Important?

“At PNM Resources, we live by these values: integrity, fairness, stewardship, engagement and safety. These values result in a dedication to taking care of people and the resources we manage with imagination, creativity and innovation.”

Jeff Sterba, Chairman, President and CEO, PNM

The California State University system several years ago adopted a pyramid of “21st Century Attributes” (below) as a set of common, core skills that every college graduate student would require, regardless of academic major or career goals. University leaders determined that these attributes were ones that all CSU graduates would need to have to successfully function in a highly networked, culturally diverse, global, rapidly changing technology-based world.

The Governor’s Workforce Coordination and Oversight Committee recognizes the value of these skills for college students, but in New Mexico wants to create even more fundamental “Skills for Life” that are taught to all New Mexicans.

<table>
<thead>
<tr>
<th>Adapting</th>
<th>Relating</th>
<th>Thinking</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transacts in a global economy</td>
<td>Collaborates within a changing, networked economy</td>
<td>Thinks and learns in a hyper-linked, interdisciplinary, virtual world</td>
</tr>
<tr>
<td>Adapts to a diverse, multi-lingual society</td>
<td>Communicates using written, people and info technology skills</td>
<td>Thinks critically and analytically</td>
</tr>
<tr>
<td>Operates in regional communities</td>
<td>Makes responsible decisions</td>
<td>Thinks creatively and inventively (entrepreneurial)</td>
</tr>
</tbody>
</table>

Baccalaureate Degree

Proficiencies in math and written and oral communication. Knowledge across the sciences, arts, humanities and social sciences. Demonstrated knowledge in a profession. Ability to think, learn and apply knowledge. Ability to value one’s self and the communities of which one is a part. Ability to make moral and ethical decisions and to act in a socially responsible manner.
Working with our industry partners, the Governor’s Coordination and Oversight Committee has defined the following 11 New Mexico Skills for Life. The Committee recommends that these Skills for Life be incorporated into the general public school curricula and be offered in special courses for adults through Workforce Connection Centers, Community colleges, GED and family literacy programs, and community groups.

No matter which career pathway an individual may choose, he or she will have to have these underlying skills.

**New Mexico Skills for Life**

- Respect and **Teamwork**
- Personal Responsibility and **Ownership**
- **Listening** and Following Directions
- **Flexibility** and Resourcefulness
- Self Management, **Confidence** and Discipline
- **Creativity** and Innovation
- Professional Etiquette and **Appearance**
- Punctuality and **Reliability**
- **Problem Solving** and Analytical Thinking
- **Honesty** and Values
- **Community Awareness**

**Certified for Success**

To improve life and work skills for adults already in the labor force, New Mexico’s Office of Workforce Training and Development has launched a new career readiness certificate, based on the national tool WorkKeys®, to test workers for a variety of basic skills like reading and math.

Individuals may take the career readiness testing and training at Workforce Connection Centers and community colleges throughout the state, and earn the **Certified for Success** certificate, which shows employers that they have the right skills for the job!
“We cannot have a competitive economy in New Mexico without a highly skilled and educated workforce.”

Terri Cole, Chair, Governor's Workforce Coordination and Oversight Committee

How Do You Read this Guidebook?

This career guide is for parents, students, teachers, guidance counselors, professors, job seekers, policymakers, developers, and employers.

It describes the 7 career clusters as well as sample occupations and wages associated with them.¹

The guidebook defines each career cluster by:
- Its major business activities, and
- The career pathways that support them.

The color-coded cluster chapters that follow use this format.

- The first chart highlights the business activities that identify the cluster and the career pathways that prepare workers to perform functions in those areas.
- Each matrix shows the cluster’s “primary” pathways or skills (in yellow), which teach core technical skill sets, as well as knowledge and skills that are “transferable” to other occupations or clusters (in gray).
- Each career pathway is illustrated with sample occupations and wages.
  - Wage ranges presented in this report are drawn from national data provided in May 2006 in the Occupational Information Network (ONET): online.onetcenter.org, and are not representative of all counties in New Mexico.

The purpose of New Mexico Career Clusters is to create new education and training career pathways for both youth and adults in the 7 cluster areas. This guidebook describes those career pathways.
Are You Interested in a Career in the Arts?

The following pages explain several career paths in arts and entertainment industries:

- Entrepreneurship
- Visual Arts
- Performing Arts
- Foreign Languages
- Design

“New Mexico has a workforce that is rich in cultural and linguistic diversity.

We need to work together to expand the wealth that higher education will bring to our communities.”

Gregory Heltman, Founder and Director, Santa Fe Symphony

Arts and Entertainment industries, especially those tied to the state’s diverse cultural and ethnic traditions, have been at the heart of New Mexico’s economy for hundreds of years.

Nationally, employment in the Arts and Entertainment sector has been on a rapid rise. At home, the New Mexico Economic Development Department has invested considerable resources to grow the state’s film production sector and the New Mexico Department of Cultural Affairs has emphasized programs that prepare artists and designers to market and sell their work.

New Mexico’s flourishing film industry has exploded over the last four years. Film-related investments have increased by 1,000%, jumping from $8 million to $100 million. 2006 has been a banner year for film production in New Mexico, serving more productions and training more crews than ever before. The membership of the New Mexico Union of Theatrical and Stage Employees has increased from 50 to 800.

The New Mexico Department of Cultural Affairs reports that cultural organizations employed more than 32,000 New Mexicans in 2003 and estimates that cultural industries have a $2.5 billion impact on the state’s economy. New Mexico has 6 museums per 100,000 people, more than twice the national average. In addition, the state has 127 performing arts companies that employ 1,600.

The New Mexico Department of Labor projects the number of jobs for art and design workers will increase by 1,700 through 2012.

Professionals in this field create, produce and distribute art and manage artistic enterprises.

The following Career Pathways provide education and training in these fields.
# Arts and Entertainment

## Cluster Core Business Functions

<table>
<thead>
<tr>
<th>Business Entrepreneurship</th>
<th>Creative and Artistic Development</th>
<th>Production</th>
</tr>
</thead>
<tbody>
<tr>
<td>Entrepreneurship</td>
<td>Visual Arts</td>
<td>Design</td>
</tr>
<tr>
<td>Business Financial Management and Accounting</td>
<td>Performing Arts</td>
<td>Project Management</td>
</tr>
<tr>
<td>Administrative and Information Support</td>
<td>Culinary Arts</td>
<td>Construction</td>
</tr>
<tr>
<td>Marketing</td>
<td>Foreign Languages</td>
<td>Logistics and Inventory Control</td>
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<tr>
<td>Consumer Sales and Service</td>
<td>Teaching and Training</td>
<td>Trades Installation and Repair</td>
</tr>
<tr>
<td>Government Relations</td>
<td></td>
<td>Media Technology</td>
</tr>
</tbody>
</table>

### Primary Skills

- Communications

### Transferable Skills

None specified.
Cluster Definition
The career cluster is comprised of courses and/or programs related to visual and performing arts, and to planning, managing and providing entertainment and related support services.

Industry Sectors
- Visual Arts
- Performing Arts
- Film Production
- Retail Trade
- Commercial Sports

Types of Businesses
- Museum Management
- Gallery Management
- Consulting
- Fine Arts
- Arts and Crafts
- Theater and Live Performance
- Music and Musical Performance
- Teaching and Training
- Retail Trade
- Production Management
- Sports Teams
- Investment
- Logistics
- Transportation
- Warehousing/Facilities
- Public and Community Relations

Core Business Function Business Entrepreneurship

Entrepreneurship Pathway
Start new business enterprises.
- Create new business ideas, products, services and innovations.
- Conduct market research; study feasibility of business plan.
- Produce business plan.
- Attract, manage investment capital.

<table>
<thead>
<tr>
<th>Minimum Education Required</th>
<th>High School Diploma/Industry Credential</th>
<th>Associate Degree</th>
<th>Baccalaureate Degree</th>
<th>Beyond Baccalaureate Degree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample Occupations and Average National Wages</td>
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<table>
<thead>
<tr>
<th>Small Business Owner $ market-based*</th>
<th>Small Business Owner $ market-based*</th>
<th>General Manager $79,000-83,000</th>
<th>Venture Capitalist &gt;$83,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>International Business Owner $ market-based*</td>
<td>Inventor $ market-based*</td>
<td>Chief Operating Officer $79,000-83,000</td>
<td>Large Business Owner &gt;$83,000</td>
</tr>
<tr>
<td>Consultant &gt;$83,000</td>
<td>Chief Executive Officer $137,000-156,000</td>
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</tbody>
</table>

Wages listed in the Guidebook are based on national averages and may not be the same as those in all New Mexico communities.

* There are a number of variables that affect the income of entrepreneurs and small business owners, and as a result there are no reliable national salary data for these occupations.

Needed skills include: Leadership; listening; business acumen; interpersonal skills; advanced written and oral communication; public speaking; financial analysis; creativity, critical thinking and problem solving.
Core Business Function  Creative and Artistic Development

Visual Arts Pathway

Create and manage sale of artwork in a variety of mediums.

- Handcraft artistic objects/images.
- Manage the production, marketing and sale of artistic objects/images.
- Supervise the care, protection and display of visual arts products and comply with public regulations.

<table>
<thead>
<tr>
<th>Minimum Education Required</th>
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</thead>
<tbody>
<tr>
<td>High School Diploma/Industry Credential</td>
</tr>
<tr>
<td>Hand packers, Packagers</td>
</tr>
<tr>
<td>Jeweler</td>
</tr>
<tr>
<td>Store Manager</td>
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<tr>
<td>Adobe Certified Expert (Graphic Design)</td>
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Sample Occupations and Average National Wages

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<tr>
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</tr>
<tr>
<td>Actor</td>
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<tr>
<td>Musician</td>
</tr>
</tbody>
</table>

Wages listed in the Guidebook are based on national averages and may not be the same as those in all New Mexico communities.

Needed skills include: Science; history; art and art history; world culture; listening; financial accounting; customer service; marketing; media technologies; accuracy and attention to detail.

Performing Arts Pathway

Produce or manage written, musical, athletic, theatrical or other performances.

- Write or perform live arts.
- Manage the production, marketing and sale of performing arts.
- Design costumes, masks, compositions, sets, lighting and other objects for use in performance.

<table>
<thead>
<tr>
<th>Minimum Education Required</th>
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<tbody>
<tr>
<td>High School Diploma/Industry Credential</td>
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<td>Musician</td>
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</tbody>
</table>

Wages listed in the Guidebook are based on national averages and may not be the same as those in all New Mexico communities.

Needed skills include: Creative writing; listening; acting, singing and dancing; world culture; customer service; interpersonal and analytical skills, marketing; media technologies.

* There are a number of variables that affect the income of entrepreneurs and small business owners, and as a result there are no reliable national salary data for these occupations.
**Foreign Languages Pathway**

- Communicate in spoken and written languages other than English.
  - Interpret/transcribe documents and speech.
  - Analyze cultural and ethnic issues for businesses.
  - Perform in a foreign language.
  - Teach foreign languages.

<table>
<thead>
<tr>
<th>Sample Occupations and Average National Wages</th>
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</thead>
<tbody>
<tr>
<td>Travel Guide $25,000-31,000</td>
</tr>
<tr>
<td>Interpreter/Translator $31,400-38,500</td>
</tr>
<tr>
<td>Adult Literacy, GED Instructor $35,700-44,000</td>
</tr>
<tr>
<td>Archaeologist/Anthropologist $35,000-48,000</td>
</tr>
<tr>
<td>International Business Owner $28,000</td>
</tr>
<tr>
<td>Immigration Inspector $49,100-59,900</td>
</tr>
<tr>
<td>Teacher $39,300-47,900</td>
</tr>
<tr>
<td>University Professor $45,000-55,000</td>
</tr>
<tr>
<td>Travel Guide $28,000</td>
</tr>
<tr>
<td>Tour Guide $19,200</td>
</tr>
<tr>
<td>Reporter $31,600</td>
</tr>
<tr>
<td>Cultural Studies Teacher $55,600</td>
</tr>
</tbody>
</table>

Wages listed in the Guidebook are based on national averages and may not be the same as those you will find in all New Mexico communities.

Needed skills include: Mathematics; history; world culture; English language; foreign language; interpersonal and analytical skills; creativity; advanced oral and written communication skills.

**Core Business Function Production**

**Design Pathway**

- Design interior and exterior spaces, products and materials.
  - Create original logos, artwork, typefaces for commercial use and advertising.
  - Design paint, textiles, materials, furniture, artwork, lighting, sound, and landscaping for building interiors.
  - Design paint, textiles, materials, furniture, artwork, lighting, sound, and landscaping for exterior landscapes.
  - Present proposals to clients.

<table>
<thead>
<tr>
<th>Sample Occupations and Average National Wages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sewing Machine Operator $16,200-20,000</td>
</tr>
<tr>
<td>Embossing Machine Operator $27,000-33,300</td>
</tr>
<tr>
<td>Commercial Design $48,200-57,200</td>
</tr>
<tr>
<td>Hand Sewer $17,100-21,200</td>
</tr>
<tr>
<td>Set Designer $32,300-40,000</td>
</tr>
<tr>
<td>Commercial Design $48,200-57,200</td>
</tr>
<tr>
<td>Floral Designer $18,700-23,000</td>
</tr>
<tr>
<td>Interior Designer $37,400-45,000</td>
</tr>
<tr>
<td>Art Director $57,400-70,000</td>
</tr>
<tr>
<td>Decorating and Painting Worker $20,000-24,500</td>
</tr>
<tr>
<td>Fashion Design $54,000-66,000</td>
</tr>
<tr>
<td>Exhibit Designer $35,800</td>
</tr>
<tr>
<td>Adobe Certified Expert (Graphic Design) $23,000</td>
</tr>
<tr>
<td>Shop Tailor $23,000</td>
</tr>
<tr>
<td>Landscape Architect $54,200</td>
</tr>
</tbody>
</table>

Wages listed in the Guidebook are based on national averages and may not be the same as those in all New Mexico communities.

Needed skills include: Mathematics; computer technology; art and art history; creativity; digital media; graphic design; listening; public speaking; accuracy and attention to detail.
Arts and Entertainment Cluster Transferable Skills and Related Pathways

- Business Financial Management and Accounting
- Administrative and Information Support
- Marketing
- Consumer Sales and Service
- Government Relations
- Culinary Arts
- Teaching and Training
- Media Technology
- Project Management
- Construction
- Logistics and Inventory Control
- Trades, Installation and Repair
- Communications

Cluster Knowledge and Skills

Are You Interested in a Career in Business?

The following pages explain several career paths in business and business support industries:

- Administrative and Information Support
- Business Financial Management and Accounting
- Economics and Management
- Information Technology Systems Administration
- Legal Services
- Teaching and Training
- Human Resources Management
- Consumer Sales and Service

“We are an aggressive computer and communications services company that has nearly doubled its employees over the last 3 years. We must have trained, talented New Mexicans to grow our business.”

Damon Salazar, President, Computer Assets

Business Services

As national and multinational companies around the country streamline operations to compete in a global economy, they are increasingly consolidating finance and human resources divisions into one central location. A large number of these so-called combined service centers have already relocated to New Mexico and employ our citizens. In addition, New Mexico has an advantage as corporations seek to provide business services to the growing Hispanic population. Since 2005, two national corporations have announced they will locate bi-lingual business service operations in New Mexico that intend to employ more than 1,100.

According to the New Mexico Department of Labor, employment in professional and business services is projected to increase from 98,700 to 125,500 jobs or 27.2% during the 2002 to 2012 period.

Administrative support positions are projected to experience the fastest growth within the professional and business services industry growing by 49.4% and adding 20,600 jobs. Management of companies and services jobs is projected to grow by 34.5% or 1,800 jobs. Professional, scientific and technical services are projected to add 3,800 jobs or grow 7.7%.

Professionals in this field have the expertise that helps businesses manage their human and corporate assets effectively and efficiently and thereby earn profits that sustain their enterprises.

The following Career Pathways offer education and training to individuals seeking to provide these services.
## 2 Business Services

<table>
<thead>
<tr>
<th>Cluster Core Business Functions</th>
<th>Data Organization and Analysis</th>
<th>Problem Solving</th>
<th>Communications and Human Relations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administrative and Information Support</td>
<td>Economics and Management</td>
<td></td>
<td>Communications</td>
</tr>
<tr>
<td>Business Financial Management and Accounting</td>
<td>Government Relations</td>
<td></td>
<td>Foreign Languages</td>
</tr>
<tr>
<td>Entrepreneurship</td>
<td>Logistics and Inventory Control</td>
<td></td>
<td>Marketing</td>
</tr>
<tr>
<td>Project Management</td>
<td>Teaching and Training</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Information Technology Systems Administration</td>
<td>Human Resources Management</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Legal Services</td>
<td>Consumer Sales and Service</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Cluster Definition
The cluster is comprised of courses and/or programs related to planning, managing and providing administrative support, information processing, accounting, and human resource management services and related management support services and to planning, managing and providing banking, investment, financial planning, and insurance services.

Industry Sectors
- Administrative Services
- Professional Services
- Financial Services
- Customer Support
- Information Technology and Management Consulting
- Sales and Marketing
- Entrepreneurship

Types of Businesses
- Human Resources
- Consulting
  - IT
  - Management
  - Financial
  - Sales
- Insurance
- Law
- Teaching and Training
- Retail Trade
- Contact (Call) Centers
- Accounting
- Investment
- Banking
- Logistics
  - Transportation
  - Warehousing/Facilities
- Public and Community Relations
- Economic Development

Core Business Function Data Organization and Analysis

Administrative and Information Support Pathway

Oversee business administration.
- Supervise staff.
- Research and write reports.
- Manage information and data systems.
- Oversee IT and physical facilities.
- Manage insurance and leases.
- Organize public events.

<table>
<thead>
<tr>
<th>Minimum Education Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>High School Diploma/Industry Credential</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sample Occupations and Average National Wages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Receptionist $19,800-24,200</td>
</tr>
<tr>
<td>Office Assistant $20,000-26,000</td>
</tr>
<tr>
<td>Insurance Claims Clerk $26,900-32,700</td>
</tr>
<tr>
<td>Medical Office Assistant $27,000</td>
</tr>
</tbody>
</table>

Wages listed in the Guidebook are based on national averages and may not be the same as those in all New Mexico communities.

Needed skills include: Leadership; mathematics; problem solving, listening, teamwork, and interpersonal skills; accounting; technical writing; analytical thinking; computer technology.
Business Financial Management and Accounting Pathway

Manage business finance and accounting operations.

- Analyze financial data.
- Oversee purchasing and billing.
- Prepare research and financial reports.
- Conduct financial audits.
- Create and manage accounting systems and practices.
- Deliver investment and banking services.
- Implement investment strategies.
- Deliver public testimony.

**Minimum Education Required**

<table>
<thead>
<tr>
<th>High School Diploma/Industry Credential</th>
<th>Associate Degree</th>
<th>Baccalaureate Degree</th>
<th>Beyond Baccalaureate Degree</th>
</tr>
</thead>
<tbody>
<tr>
<td>New Accounts Clerk</td>
<td>Bill and Account Collector</td>
<td>Credit Analyst</td>
<td>Financial Analyst</td>
</tr>
<tr>
<td>$24,300-29,500</td>
<td>$25,000-30,300</td>
<td>$44,000-53,600</td>
<td>$56,500-68,900</td>
</tr>
<tr>
<td>Billing Machine Operator</td>
<td>Bookkeeping Clerk</td>
<td>Accountant</td>
<td>Actuary</td>
</tr>
<tr>
<td>$25,700-31,000</td>
<td>$26,000-31,600</td>
<td>$46,200-56,400</td>
<td>$71,000-86,600</td>
</tr>
<tr>
<td>Credit Checker</td>
<td>Credit Authorizer</td>
<td>Auditor</td>
<td>Treasurer, Controller</td>
</tr>
<tr>
<td>$26,000-31,600</td>
<td>$26,000-31,600</td>
<td>$46,200-56,400</td>
<td>$75,400-92,000</td>
</tr>
<tr>
<td>Procurement Clerk</td>
<td>Brokerage Clerk</td>
<td>Budget Analyst</td>
<td>Chief Finance Ofc</td>
</tr>
<tr>
<td>$28,300-34,500</td>
<td>$31,600-40,000</td>
<td>$51,400-63,800</td>
<td>$75,400-92,000</td>
</tr>
</tbody>
</table>

Sample Occupations and Average National Wages

Wages listed in the Guidebook are based on national averages and may not be the same as those in all New Mexico communities.

**Core Business Function Problem Solving**

Economics and Management Pathway

Manage small or large business.

- Provide vision and leadership.
- Develop business, investment and economics strategies and put into practice.
- Manage staff and budget.
- Build community relationships and partnerships.
- Analyze market changes and create innovation.

**Minimum Education Required**

<table>
<thead>
<tr>
<th>High School Diploma/Industry Credential</th>
<th>Associate Degree</th>
<th>Baccalaureate Degree</th>
<th>Beyond Baccalaureate Degree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Statistical Assistant</td>
<td>Community Services Mgr</td>
<td>Economist</td>
<td></td>
</tr>
<tr>
<td>$26,100-32,100</td>
<td>$44,700-53,500</td>
<td>$65,100-79,500</td>
<td></td>
</tr>
<tr>
<td>Small Business Owner</td>
<td>Business Ops Specialist</td>
<td>Mathematician</td>
<td></td>
</tr>
<tr>
<td>$ market-based*</td>
<td>$48,500-60,000</td>
<td>$73,000-89,000</td>
<td></td>
</tr>
<tr>
<td>Statistician</td>
<td>$53,900-66,000</td>
<td>Non-profit Ex Director</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>&gt;$83,000</td>
<td></td>
</tr>
<tr>
<td>Management Analyst</td>
<td>Large Business Owner</td>
<td>Chief Ex Officer</td>
<td></td>
</tr>
<tr>
<td>$58,100-70,900</td>
<td>$137,000-156,00</td>
<td>$137,000-156,00</td>
<td></td>
</tr>
<tr>
<td>General Ops Manager</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$72,300-88,000</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Wages listed in the Guidebook are based on national averages and may not be the same as those in all New Mexico communities.

Needed skills include: Mathematics; finance; computer programming; computer technology; accounting; teamwork, analytical and interpersonal skills; technical writing; accuracy and attention to detail; public speaking.

* There are a number of variables that affect the income of entrepreneurs and small business owners, and as a result there are no reliable national salary data for these occupations.

Needed skills include: Calculus; history; economics and finance; computer technology; creativity; analytical, leadership, negotiating and interpersonal skills; public speaking; advanced writing; business acumen.
Information Technology Systems Administration Pathway

Handle business computer and information technologies.

- Meet with users to determine individual and business technology needs.
- Integrate information and telecommunications technologies.
- Plan, direct, or coordinate data processing and information systems.
- Recommend product purchases and upgrades.
- Provide technical user support and equipment repair.
- Maintain information security.

<table>
<thead>
<tr>
<th>Sample Occupations and Average National Wages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data Entry Keyer $21,100-25,700</td>
</tr>
<tr>
<td>Computer Operator $26,500-34,500</td>
</tr>
<tr>
<td>Computer Security Spclst $55,000-65,000</td>
</tr>
<tr>
<td>Computer Science Instructor $48,000-58,500</td>
</tr>
<tr>
<td>A+ Certified Computer Technician</td>
</tr>
<tr>
<td>Equipment Repair, Install $33,000-39,000</td>
</tr>
<tr>
<td>Database Administrator $56,000-68,000</td>
</tr>
<tr>
<td>Computer, Systems Mgr $90,000-105,000</td>
</tr>
<tr>
<td>Microsoft Office Specialist</td>
</tr>
<tr>
<td>Technical Support Spclst $35,000-44,600</td>
</tr>
<tr>
<td>Network Administrator $59,100</td>
</tr>
<tr>
<td>Computer Science Instructor $53,500</td>
</tr>
<tr>
<td>Microsoft Certified Systems Engineer</td>
</tr>
<tr>
<td>Electronics Eng Technician $43,100-50,000</td>
</tr>
<tr>
<td>Programmer Analyst $67,500</td>
</tr>
</tbody>
</table>

Wages listed in the Guidebook are based on national averages and may not be the same as those in all New Mexico communities.

Needed skills include: Technical knowledge; mathematics; electronics; computer technology; analytical and interpersonal skills; technical writing; problem solving; accuracy and attention to detail.

Legal Services Pathway

Study local, state and federal laws and provide legal advice.

- File legal documents.
- Analyze impact of law on business decisions and practices.
- Follow changes in the law and provide recommendations.
- Prepare legal documents.
- Produce/present legal strategies.

<table>
<thead>
<tr>
<th>Sample Occupations and Average National Wages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Court Clerk $26,000-31,800</td>
</tr>
<tr>
<td>Abstractors $31,200-38,200</td>
</tr>
<tr>
<td>Law Clerk $31,000-37,500</td>
</tr>
<tr>
<td>Criminal Justice Faculty $45,000-55,000</td>
</tr>
<tr>
<td>Title Searchers $31,200-38,200</td>
</tr>
<tr>
<td>Legal Secretary $33,600-41,000</td>
</tr>
<tr>
<td>Municipal Clerk $28,900</td>
</tr>
<tr>
<td>Lawyer $87,700-107,000</td>
</tr>
<tr>
<td>Title Examiners $34,700</td>
</tr>
<tr>
<td>Paralegal $36,000-44,400</td>
</tr>
<tr>
<td>Criminal Investigator $54,500</td>
</tr>
<tr>
<td>University Professor $&gt;90,000</td>
</tr>
</tbody>
</table>

Wages listed in the Guidebook are based on national averages and may not be the same as those in all New Mexico communities.

Needed skills include: Law training; financial accounting; information research and analysis; advanced analytical, listening, writing and communications skills; accuracy and attention to detail; public speaking.
Core Business Function Communications and Human Relations

Teaching and Training Pathway

Teach classes and training courses.
- Counsel clients about training needs.
- Design training programs according to professional expertise.
- Develop curriculum.
- Deliver speeches and presentations.

Minimum Education Required

<table>
<thead>
<tr>
<th>High School Diploma/Industry Credential</th>
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<th>Beyond Baccalaureate Degree</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sample Occupations and Average National Wages</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Motivational Speaker $17,700-21,700</td>
<td>Teacher Assistant $21,000-25,600</td>
<td>Elementary Teacher $39,300-47,900</td>
<td>Health Educator $35,700-43,000</td>
</tr>
<tr>
<td>Technical Certification Instructor $21,000-25,600</td>
<td>Tutor/Graduate Assistant $24,400-29,500</td>
<td>Special Ed Teacher $41,00-50,900</td>
<td></td>
</tr>
<tr>
<td>Diet Technician $23,400-28,600</td>
<td>Fitness Instructor $23,400-28,600</td>
<td>Training Specialist $40,800-50,000</td>
<td>Instructional Coordinator $45,000-55,000</td>
</tr>
<tr>
<td>Library Technician $25,400</td>
<td>Development, Training Mgr $63,400-77,400</td>
<td>Education Administrator $58,500-68,500</td>
<td></td>
</tr>
</tbody>
</table>

Wages listed in the Guidebook are based on national averages and may not be the same as those in all New Mexico communities.

Needed skills include: Technical expertise; advanced oral, written, and listening communication skills; problem solving; creativity; information research and analysis; business acumen; public speaking.

Human Resources Management Pathway

Manage employment services and employee benefits and development.
- Interview and select job candidates.
- Prepare reports analyzing staff turnover and plan for new hires.
- Recommend staff training and professional development.

Minimum Education Required

<table>
<thead>
<tr>
<th>High School Diploma/Industry Credential</th>
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</thead>
<tbody>
<tr>
<td><strong>Sample Occupations and Average National Wages</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Payroll Clerk $27,900-33,900</td>
<td>Recruiter $37,100-45,100</td>
<td>Health Services Mgr $61,500-75,000</td>
<td></td>
</tr>
<tr>
<td>Human Resources Asst $29,100-35,100</td>
<td>Compensation Analyst $44,700-53,500</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Employment Interviewer $41,100</td>
<td>Human Resources Mgr $66,400-83,600</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Wages listed in the Guidebook are based on national averages and may not be the same as those in all New Mexico communities.

Needed skills include: Leadership; finance; advanced interpersonal, oral, written, and listening communication skills; business acumen; information research and analysis.

* There are a number of variables that affect the income of entrepreneurs and small business owners, and as a result there are no reliable national salary data for these occupations.
Consumer Sales and Service Pathway

Assist customer with sales.
- Develop marketing/sales strategies.
- Utilize communications, advertising and public relations.
- Employ foreign languages as necessary.
- Provide technical sales information and guidance.
- Manage customer accounts and billing.
- Provide pre- and post-sale customer service and technical support.

<table>
<thead>
<tr>
<th>Sample Occupations and Average National Wages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum Education Required</td>
</tr>
<tr>
<td>High School Diploma/Industry Credential</td>
</tr>
<tr>
<td>Retail Salesperson $17,000-20,000</td>
</tr>
<tr>
<td>Order Filler $18,000-22,000</td>
</tr>
<tr>
<td>Delivery Services Truck Driver $22,000-26,800</td>
</tr>
<tr>
<td>Customer Service Rep $24,500-30,000</td>
</tr>
<tr>
<td>Cargo and Freight Agent $31,500-38,900</td>
</tr>
</tbody>
</table>

Wages listed in the Guidebook are based on national averages and may not be the same as those in all New Mexico communities.

Needed skills include: Mathematics; technical and scientific knowledge; advanced interpersonal, written, listening and oral communication; foreign languages; accounting; statistics; digital media; public speaking.

Cluster Transferable Skills and Related Pathways
- Entrepreneurship
- Government Relations
- Logistics and Inventory Control
- Project Management
- Communications
- Foreign Languages
- Marketing

Cluster Knowledge and Skills
Are You Interested in a Career in Computers or Marketing?

The following pages explain several career paths in information and communications industries:

- Marketing
- Communications
- Media Technology
- Software Application Development
- Web Development
- Printing Technology
- Network Systems

“New Mexico must not aim for the lowest common denominator.

We must strive to create leaders.”

Steve Wedeen, Founder, Vaughn Wedeen Creative

Changes in technology and globalization have permanently altered the way we work and live. In today’s society, all individuals must be able to generate and use electronic information and equipment on the job, for entertainment, and for media.

Communications and Information industries are a fast-growing segment of the New Mexico economy.

According to the New Mexico Department of Labor the information industry is projected to have growth approximating 40% with 6,600 jobs being added for the period 2002 through 2012.

The fastest growing information sub-sector is the one encompassing Internet service providers, web search portals, and data processing services. Growth for this category is projected to be much faster than average, exceeding 80%, by 2012. The telecommunications sector is also anticipated to experience faster than average growth with jobs increasing by 3,300 or roughly 48%.

Professionals in this field develop the strategies, systems, and products that help us shop, get and deliver news and information, and promote our business and personal interests.

These Career Pathways prepare individuals to provide these services.
# Communications and Information

## Cluster Core Business Functions

<table>
<thead>
<tr>
<th>Vision and Initiation</th>
<th>Strategy Development</th>
<th>Creative Development</th>
<th>Production and Maintenance</th>
<th>Delivery and Sales</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Primary Skills</strong></td>
<td><strong>Transferable Skills</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **Applied Research Engineering**
- **Economics and Management**
- **Communications**
- **Product Engineering**
- **Consumer Sales and Service**
- **Marketing**
- **Foreign Languages**
- **Architecture and Drafting**
- **Printing Technology**
- **Entrepreneurship**
- **Design**
- **Information Technology Systems Administration**
- **Media Technology**
- **Network Systems**
- **Software Application Development**
- **Web Development**
**Cluster Definition**

The career cluster is comprised of courses and/or programs related to designing, producing, exhibiting, performing, writing and publishing multimedia content and to designing, developing, managing and operating communication and information technology networks and related hardware and software for the recording, storage, transformation, transmission and distribution of voice, video images and data including both telecommunications and computing services.

**Industry Sectors**

- Digital Media
- Customer Care Call Centers
- Information Technology
- Publishing
- Design

**Types of Businesses**

- Journalism
- Publishing
- Marketing
- Design
- Advertising
- Security
- Telecommunications
- Web Development
- Software Design
- Software Implementation
- Computer Networking Services
- Sales
- Information Exchange
- Maintenance
- Data Centers
- Medical Transcription/Call Centers
- Research and Development

**Core Business Function** **Strategy Development**

**Marketing Pathway**

- Design campaigns to sell business products and services.
- Consult with client to determine needs; analyze market competition.
- Conduct market research.
- Write advertising copy, press releases, and articles and design graphics presentations and advertising artwork.
- Develop marketing strategies and present to client.

* There are a number of variables that affect the income of entrepreneurs and small business owners, and as a result there are no reliable national salary data for these occupations.

**Sample Occupations and Average National Wages**

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<td><strong>High School Diploma/Industry Credential</strong></td>
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<tr>
<td><strong>Associate Degree</strong></td>
</tr>
<tr>
<td><strong>Baccalaureate Degree</strong></td>
</tr>
<tr>
<td><strong>Beyond Baccalaureate Degree</strong></td>
</tr>
<tr>
<td>Product Demonstrator $18,000-22,500</td>
</tr>
<tr>
<td>Survey Researcher $25,000-30,800</td>
</tr>
<tr>
<td>Market Research Analyst $51,400-62,800</td>
</tr>
<tr>
<td>Large Business Owner $83,000</td>
</tr>
<tr>
<td>Adobe Certified Expert (Graphic Design)</td>
</tr>
<tr>
<td>Graphic Designer $34,200-41,000</td>
</tr>
<tr>
<td>Advertising Manager $60,000-73,000</td>
</tr>
<tr>
<td>Avid Certified User (Digital Video)</td>
</tr>
<tr>
<td>Advertising Agent $37,400-45,500</td>
</tr>
<tr>
<td>Marketing Manager $81,400-100,000</td>
</tr>
<tr>
<td>Sales Representative $18,700</td>
</tr>
<tr>
<td>Small Business Owner $ market-based*</td>
</tr>
<tr>
<td>Consultant &gt;$83,000</td>
</tr>
</tbody>
</table>

Wages listed in the Guidebook are based on national averages and may not be the same as those in all New Mexico communities.

**Minimum Education Required**

- High School Diploma/Industry Credential
- Associate Degree
- Baccalaureate Degree
- Beyond Baccalaureate Degree

**Needed skills include:** Creativity; art and art history; statistics; world culture; creative writing; digital media technologies; advanced oral communication; research and analysis.
Core Business Function **Creative Development**

**Communications Pathway**

Provide communications research, strategies, and products.

- Survey customer preferences using market and opinion research, focus groups and polls.
- Conduct training sessions to improve public speaking skills.
- Assist in working with the news media and getting press coverage.
- Develop logos, slogans, and brand identities for business and other clients.
- Formulate strategic outreach and communications plans.
- Plan external/public relations.
- Plan creative projects and campaigns.

**Minimum Education Required**

<table>
<thead>
<tr>
<th>High School Diploma/Industry Credential</th>
<th>Associate Degree</th>
<th>Baccalaureate Degree</th>
<th>Beyond Baccalaureate Degree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Courier and Messenger</td>
<td>Statistical Assistant</td>
<td>Reporter, Correspondent</td>
<td>Editor</td>
</tr>
<tr>
<td>$18,000-22,600</td>
<td>$26,100-32,100</td>
<td>$26,500-34,700</td>
<td>$40,200-49,000</td>
</tr>
<tr>
<td>Survey Researcher</td>
<td></td>
<td>Broadcast News Analyst</td>
<td>College Professor</td>
</tr>
<tr>
<td>$25,000-30,800</td>
<td></td>
<td>$37,100-45,300</td>
<td>$45,000-55,600</td>
</tr>
<tr>
<td>Copy Writer</td>
<td></td>
<td>Technical Writer</td>
<td>Fundraiser</td>
</tr>
<tr>
<td>$40,000-50,000</td>
<td></td>
<td>$49,000-60,000</td>
<td>$83,000</td>
</tr>
<tr>
<td>Public Relations Specialist</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$40,000-50,000</td>
<td></td>
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</tr>
</tbody>
</table>

Sample Occupations and Average National Wages

- Wages listed in the Guidebook are based on national averages and may not be the same as those in all New Mexico communities.

Needed skills include: Listening; statistics; public speaking; advanced analytical, interpersonal and problem solving skills; creative writing; art and art history; digital technologies; information research and analysis; history; economics; political and world culture.

Core Business Function **Production and Maintenance**

**Media Technologies Pathway**

Create audio, video and film products.

- Operate computers, cameras, sound systems and other media equipment.
- Write and edit multimedia content.
- Create and edit digital images and animation.
- Design typeface and graphics.

**Minimum Education Required**

<table>
<thead>
<tr>
<th>High School Diploma/Industry Credential</th>
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<th>Baccalaureate Degree</th>
<th>Beyond Baccalaureate Degree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adobe Certified Expert (Graphic Design)</td>
<td>Audio, Video Equip Technician</td>
<td>Film Laboratory Technician</td>
<td>Adv Computer Engineer</td>
</tr>
<tr>
<td>$30,000-36,400</td>
<td>$35,400-43,200</td>
<td>$18,000-22,300</td>
<td>$83,000</td>
</tr>
<tr>
<td>Avid Certified User (Digital Video)</td>
<td>Sound Engineering Technician</td>
<td>Camera Operator</td>
<td></td>
</tr>
<tr>
<td>$35,400-43,200</td>
<td>$29,200-35,600</td>
<td>$25,000-30,800</td>
<td></td>
</tr>
<tr>
<td>Certified Internet Webmaster</td>
<td>Film and Video Editor</td>
<td>Multi-media Artist, Animator</td>
<td></td>
</tr>
<tr>
<td>$40,300-50,000</td>
<td>$40,300-50,000</td>
<td>$45,000-55,000</td>
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</tr>
</tbody>
</table>

Sample Occupations and Average National Wages

- Wages listed in the Guidebook are based on national averages and may not be the same as those in all New Mexico communities.

Needed skills include: Mathematics; art and art history; computer programming; electronics; mechanics; graphic design; advanced writing and analytical skills.
Software Application Development Pathway

- Write computer language to perform customer/project requirements.
- Write and adapt software programs using a variety of computer languages.
- Create software applications.
- Develop new computer languages.

### Minimum Education Required

<table>
<thead>
<tr>
<th>High School Diploma/Industry Credential</th>
<th>Associate Degree</th>
<th>Baccalaureate Degree</th>
<th>Beyond Baccalaureate Degree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Microsoft Certified Solution Developer</td>
<td>Computer Operator $28,500-34,500</td>
<td>Computer Programmer $57,000-70,000</td>
<td>Computer Engineer, Apps $68,700-84,000</td>
</tr>
<tr>
<td>Microsoft Certified Application Developer</td>
<td>Technical Support Specialist $35,000-44,600</td>
<td>Consultant &gt;$83,000</td>
<td>Computer, Info Systems Mgr $90,000-105,000</td>
</tr>
</tbody>
</table>

### Sample Occupations and Average National Wages

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<td>Computer, Info Systems Mgr $90,000-105,000</td>
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Wages listed in the Guidebook are based on national averages and may not be the same as those in all New Mexico communities.

Needed skills include: Calculus; creativity; computer programming; technical writing; accuracy and attention to detail; advanced teamwork, analytical and problem solving skills.

Web Development Pathway

- Design, develop and maintain Internet sites.
- Consult with client and analyze needs.
- Integrate information, telecommunications, and web technologies.
- Plan and coordinate the development of web-based data processing and information systems applications.
- Design Internet site graphics, features and marketing message.
- Present recommendations to client.

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</tr>
</thead>
<tbody>
<tr>
<td>Data Entry Keyer $21,100-25,700</td>
<td>Computer Operator $28,500-34,500</td>
<td>Copy Writer $40,000-50,000</td>
<td>Computer Engineer, Apps $68,700-84,000</td>
</tr>
<tr>
<td>Adobe Certified Expert (Graphic Design)</td>
<td>Advertising Agent $37,400-45,500</td>
<td>Website Developer &gt;$50,000</td>
<td>Computer, Info Systems Mgr $90,000-105,000</td>
</tr>
<tr>
<td>Certified Internet Webmaster</td>
<td>Graphic Designer $34,200-41,000</td>
<td>Database Administrator $56,000-68,000</td>
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</tr>
<tr>
<td>Dreamweaver Certified Web Developer</td>
<td>Technical Support Specialist $35,000-44,600</td>
<td>Computer Programmer $57,000-70,000</td>
<td></td>
</tr>
</tbody>
</table>

Wages listed in the Guidebook are based on national averages and may not be the same as those in all New Mexico communities.

Needed skills include: Calculus; creativity; graphic design; computer programming and animation; advanced writing; accuracy and attention to detail; teamwork, listening, analytical and problem solving skills.
Core Business Function Delivery and Sales

Printing Technology Pathway

Operate printing technology and equipment.

- Use specialized inks, paints and materials to complete jobs for client.
- Operate computerized and manual equipment and systems.
- Understand customer needs.
- Check product quality and assure customer satisfaction.
- Troubleshoot and repair equipment as needed.

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<th>Beyond Baccalaureate Degree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duplicating Machine Operator</td>
<td>$20,000-25,700</td>
<td>Screen Printing Operator $27,400-33,000</td>
<td>Typesetter $29,200-35,600</td>
<td>Offset Lithographic Press Operator $27,400-33,000</td>
</tr>
<tr>
<td>Printing Machine Operators</td>
<td>$27,400-33,000</td>
<td>Letterpress Setter $27,400-33,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Precision Printing Workers</td>
<td>$27,400-33,000</td>
<td>Desktop Publisher $29,300-35,700</td>
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</tr>
</tbody>
</table>

Sample Occupations and Average National Wages

Wages listed in the Guidebook are based on national averages and may not be the same as those in all New Mexico communities.

Needed skills include: Mathematics; technical knowledge; accuracy and attention to detail; analytical, listening and problem solving skills; mechanics; computer technology; customer service.

Network Systems Pathway

Manage networked computer systems and applications.

- Analyze data processing problems and recommend hardware and software solutions.
- Maintain and install network equipment.
- Maintain network applications.
- Perform technology systems planning and upgrades.
- Prepare proposals and reports for management.

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</tr>
</thead>
<tbody>
<tr>
<td>CompTIA Network + Technician</td>
<td></td>
<td>Network, Data Systems Analyst $54,000-66,000</td>
<td>Network Systems Administrator $54,000-66,000</td>
<td>Computer Eng, Systems $73,100-90,000</td>
</tr>
<tr>
<td>Microsoft Certified System Administrator</td>
<td>Computer Operator $28,500-34,500</td>
<td>Computer Systems Analyst $60,000-74,500</td>
<td></td>
<td>Computer Science Instructor $48,000-58,500</td>
</tr>
<tr>
<td>Cisco Certified Network Associate</td>
<td></td>
<td>Consultant &gt;$83,000</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Sample Occupations and Average National Wages

Wages listed in the Guidebook are based on national averages and may not be the same as those in all New Mexico communities.

Needed skills include: Calculus; computer programming; technical writing; accuracy and attention to detail; advanced teamwork, analytical and problem solving skills.
Communications and Information Cluster Transferable Skills and Related Pathways

- Applied Research Engineering
- Basic Science
- Entrepreneurship
- Economics and Management
- Foreign Languages
- Product Engineering
- Architecture and Drafting
- Design
- Consumer Sales and Service
- Information Technology Systems

Cluster Knowledge and Skills

Are You Interested in a Career in Oil and Gas or Alternative Energy?

The following pages explain several career paths in energy and environmental industries:

- Government Relations
- Product Engineering
- Machining, Instrument and Electrical
- Process Engineering
- Health, Safety and Environmental Regulation
- Maintenance Operations
- Environmental Systems

“In the 21st century college education is the single most important determinant of future quality of life.”

Rusty Schmit, Founder and CEO, Advent Solar

New Mexico’s economy has some of the most productive and diverse energy activities of any state. It has abundant energy resources, including coal, oil, gas, wind, solar and biomass, and its universities, as well as Sandia National Laboratories and Los Alamos National Laboratory, are world leaders in advanced energy science and research.

In 2005, businesses pumped 60 million barrels of crude oil and 1.6 million cubic feet of natural gas from the state. These natural resources translate into a significant number of jobs in the state’s economy. The New Mexico Oil and Gas Association estimates that 23,000 New Mexicans are employed in their industry. There are 225 registered producing mines in New Mexico. Minerals mined range from coal to potash and copper. The New Mexico Mining Association estimates their industry employs about 6,000.

The New Mexico Department of Labor projects the mining sector alone will create 1,190 new jobs over the next 6 years.

New Mexico’s combination of abundant natural resources and research and development capacity positions it to be a leader in the field of renewable energy. Nationally, clean energy accounted for $13 billion in revenues in 2003. In the next 10 years, that figure is expected to rise to $92 billion.

Most notably, New Mexico is poised to take a national leadership role in research, development, manufacturing, and integration of hydrogen energy technology products and systems. The fuel cell is one such technology that holds great promise for meeting the world’s future energy needs. For more than 25 years, New Mexico has led the world in hydrogen and fuel cell research and development. Research in renewable energy is thriving here. In 2004, New Mexico received $40.4 million from the U.S. Department of Energy’s Office of Energy Efficiency and Renewable Energy for a variety of state and federal programs relating to renewable energy development.

Professionals in this field support the manufacturing and delivery of products and services to power our homes, businesses and transportation.
## Energy and Environmental Technologies

<table>
<thead>
<tr>
<th>Cluster Core Business Functions</th>
<th>Research and Development</th>
<th>Production Services and Sales</th>
<th>Engineering and Design</th>
<th>Production and Manufacturing</th>
<th>Installation Construction Maintenance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Basic Science</td>
<td>Administrative Services and Information Support</td>
<td>Architecture and Drafting</td>
<td>Health, Safety and Environmental Regulation</td>
<td>Trades, Installation and Repair</td>
</tr>
<tr>
<td></td>
<td>Entrepreneurship</td>
<td>Marketing</td>
<td>Machining, Instrument and Electrical</td>
<td>Maintenance Operations</td>
<td>Project Management</td>
</tr>
<tr>
<td></td>
<td>Laboratory Testing</td>
<td>Foreign Languages</td>
<td>Quality Assurance</td>
<td>Logistics and Inventory Control</td>
<td>Civil Engineering</td>
</tr>
<tr>
<td></td>
<td>Government Relations</td>
<td>Information Technology Systems Administration</td>
<td>Environmental Systems</td>
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</tbody>
</table>

**Primary Skills**

**Transferable Skills**
Cluster Definition

The career cluster is comprised of courses and/or programs related to planning, managing and performing the processing of energy materials into intermediate or final products and related professional and technical support activities such as production planning and control, maintenance and manufacturing/processing engineering.

Industry Sectors

- Fossil Fuel (gas, oil, coal, ethanol) Distribution, Production, By-products
- Renewable Energy (photo voltaic, wind, solar thermal, biomass, fuel cell, hydrogen, large solar) Distribution, Production, By-products
- Construction
- Architecture
- Environmental (air, waste, water, groundwater) Technologies

Types of Businesses

- Manufacturing
- Marketing
- Installation
- Design
- Sales
- Science R&D
- Regulation/Law
- Energy Services
  - Construction
  - Retrofit
  - Consulting

Core Business Function Production Services and Sales

Government Relations Pathway

Help organizations follow government regulations and requirements.

- Research and analyze government regulations.
- Make inspections and recommend changes needed for compliance with the law.
- Testify in legal proceedings.
- Conduct community and government outreach and give public presentations.
- Oversee government accounts and bookkeeping.

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<tbody>
<tr>
<td>Sample Occupations and Average National Wages</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Freight Inspector $43,200-53,600</td>
<td>Licensing Examiner $43,700-53,000</td>
<td>Fire Investigator $42,200-51,400</td>
<td>Govt Relations Executive &gt;$50,000</td>
<td></td>
</tr>
<tr>
<td>Office Assistant $20,000-26,000</td>
<td>Government Inspector $43,700-53,000</td>
<td>Transportation Inspector $43,200-53,600</td>
<td>Govt Executive $127,800-155,800</td>
<td></td>
</tr>
<tr>
<td>Courier and Messenger $18,000-22,600</td>
<td>Env Compliance Inspector $43,700-53,000</td>
<td>Special Agent $49,100-60,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Construction Building Inspector $39,600-48,200</td>
<td>Financial Examiner $54,400-66,400</td>
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</tr>
</tbody>
</table>

Wages listed in the Guidebook are based on national averages and may not be the same as those in all New Mexico communities.

Needed skills include: Technical and scientific knowledge; interpersonal, written and oral communication; legal training; library and Internet research; finance and accounting; municipal, local, state and federal law.
Core Business Function Engineering and Design

Product Engineering Pathway

Design, test and build new industry products; re-engineer existing products.

- Create and draft new product design.
- Build computer-generated as well as physical models of product.
- Present design ideas to the client.
- Test product’s safety and reliability.
- Write and modify computer programs as necessary.

<table>
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<tbody>
<tr>
<td>High School Diploma/Industry Credential</td>
</tr>
<tr>
<td>National Occupational Competency Testing Institute Computer-Assisted Drafter</td>
</tr>
<tr>
<td>American Design Drafting Association Certified Drafter</td>
</tr>
<tr>
<td>Microsoft Certified Application Developer</td>
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</tbody>
</table>

Sample Occupations and Average National Wages

Wages listed in the Guidebook are based on national averages and may not be the same as those in all New Mexico communities.

Needed skills include: Master’s of Science or Bachelor’s of Science in electrical, mechanical or chemical engineering; calculus; computer aided design (CAD); computer programming; machine shop; geographic information system (GIS); public speaking.

Machining, Instrument and Electrical Pathway

Engineer, repair and maintain machines, instruments and electrical components.

- Machine parts.
- Repair and maintain manufacturing process instruments and electrical systems.
- Provide written and oral reports.
- Write and modify computer programs as necessary.

<table>
<thead>
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<th>Minimum Education Required</th>
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</thead>
<tbody>
<tr>
<td>High School Diploma/Industry Credential</td>
</tr>
<tr>
<td>Electrician Helper $21,200-25,800</td>
</tr>
<tr>
<td>Coil Winder, Taper, Finisher $23,300-28,500</td>
</tr>
<tr>
<td>Foundry Mold Maker $25,600-31,200</td>
</tr>
<tr>
<td>Soldering and Brazing Opertr. $27,000-33,000</td>
</tr>
<tr>
<td>National Center for Construction Certified Welder</td>
</tr>
</tbody>
</table>

Wages listed in the Guidebook are based on national averages and may not be the same as those in all New Mexico communities.

Needed skills include: Technical and scientific knowledge; electronics; computer programming; machine shop; technical writing.
Core Business Function Production and Manufacturing

Process Engineering Pathway

Oversee manufacturing plant to assure that systems and processes are operating.

- Use computerized manufacturing process controls.
- Identify, report and repair malfunctions.
- Manage production operations, including manufacturing technology, manufacturing floor design and setup.

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<tbody>
<tr>
<td>Fabricator $22,600-27,600</td>
</tr>
<tr>
<td>Conveyor Operator $23,600-28,800</td>
</tr>
<tr>
<td>Semiconductor Processor $27,000-33,000</td>
</tr>
<tr>
<td>Filtering, Still Machine Setter $30,600-37,400</td>
</tr>
<tr>
<td>Gas Processing Plant Operator $45,000-56,300</td>
</tr>
</tbody>
</table>

Wages listed in the Guidebook are based on national averages and may not be the same as those in all New Mexico communities.

Needed skills include: Associate’s Degree: electrical engineering, physics, chemical engineering, chemistry or mechanical engineering; electronics; trigonometry; machine shop; technical writing; semiconductor manufacturing, reading comprehension, lean manufacturing, trades skills.

Health, Safety and Environmental Regulation Pathway

Oversee compliance with health and safety regulations.

- Inspect equipment and workplaces for safety violations.
- Prepare written and oral reports of violations and recommend changes.
- Analyze statistical data.
- Conduct staff trainings.

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<td>Railroad Inspector $43,100-52,700</td>
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<td>Motor Vehicle Inspector $43,100-52,700</td>
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<tr>
<td>Construction Inspector $43,900</td>
</tr>
<tr>
<td>Fire Inspector $46,800</td>
</tr>
<tr>
<td>Occupational Safety Inspector $52,600</td>
</tr>
</tbody>
</table>

Wages listed in the Guidebook are based on national averages and may not be the same as those in all New Mexico communities.

Needed skills include: Technical knowledge and research; leadership; business writing; interpersonal and oral communication.
Management Operations Pathway

Manage manufacturing plant maintenance.

- Maintain computerized equipment and systems.
- Supervise team leaders and report to management.

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<tbody>
<tr>
<td>Production Laborer $18,000-22,200</td>
</tr>
<tr>
<td>Roustabout, Oil and Gas $21,700-26,500</td>
</tr>
<tr>
<td>Wellhead Pumper $32,000-38,500</td>
</tr>
<tr>
<td>Meter Mechanics $39,700-48,500</td>
</tr>
</tbody>
</table>

Wages listed in the Guidebook are based on national averages and may not be the same as those in all New Mexico communities.

Needed skills include: Electronics; Associate’s degree; machine shop; technical writing; interpersonal, analytical and problem solving skills.

Core Business Function Installation, Construction, Maintenance

Civil Engineering Pathway

Design structures and facilities.

- Design plans for large structures like bridges, dams, sewer systems, railroads, roads, and power plants.
- Oversee construction of these facilities.

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Wages listed in the Guidebook are based on national averages and may not be the same as those in all New Mexico communities.

Needed skills include: Bachelor’s of Science or Associate’s of Science degree; calculus; statistics; information research and analysis; accuracy and attention to detail; advanced oral and written communication and analytical and problem solving skills.
Environmental Systems Pathway

Manage industrial impact on environmental conditions and landscape.

- Test soil, air, water samples for evidence of environmental pollution.
- Monitor environmental impact on plants and animals.
- Manage forests and wetlands.
- Study environmental conditions and recommend needed changes in industrial production, management and waste.

<table>
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</tr>
</thead>
<tbody>
<tr>
<td><strong>EPA-Certified Refrigerant Handler</strong></td>
</tr>
<tr>
<td>Well and Core Drill Operator $30,200-36,800</td>
</tr>
<tr>
<td>Environmental Protection Tech $31,900-38,900</td>
</tr>
<tr>
<td>Urban, Regional Planner $49,000-60,000</td>
</tr>
</tbody>
</table>

| **OSHA-Certified Hazardous Materials Technician** |
| Geological Data Technician $37,700-45,700 |
| Forester $44,000-53,200 |
| Environmental Scientist $46,000-57,000 |

| **Surveyor** |
| $39,600-47,300 |
| Range Manager $47,300-57,300 |
| Microbiologist $50,000-60,800 |

| **Cartographer** $41,700-51,100 |
| Soil Conservationist $47,300-57,300 |
| Hydrologist $54,800-66,800 |

| **Consultant** >$83,000 |
| Geologist $63,100-77,100 |

Wages listed in the Guidebook are based on national averages and may not be the same as those in all New Mexico communities.

Needed skills include: Bachelor’s of Science or Associate’s of Science degree; calculus; statistics; information research and analysis; accuracy and attention to detail; advanced oral and written communication and analytical and problem solving skills.

Cluster Transferable Skills and Related Pathways

- Basic Science
- Applied Research Engineering
- Entrepreneurship
- Laboratory Testing
- Economics and Management
- Administrative Services and Information Support
- Marketing
- Foreign Languages
- Information Technology Systems Administration
- Architecture and Drafting
- Quality Assurance
- Logistics and Inventory Control
- Construction
- Trades, Installation and Repair
- Project Management

Cluster Knowledge and Skills

Are You Interested in Manufacturing or Construction?

The following pages explain several career paths in engineering, manufacturing and construction industries:

- Architecture and Drafting
- Systems Integration Engineering
- Media Technology
- Software Application Development
- Web Development
- Printing Technology
- Network Systems

“Technology is helping create a manufacturing boom in New Mexico.

At Eclipse Aviation we're creating opportunities for New Mexicans with the right skills to work in aerospace and with companies that are revolutionizing the transportation market.”

Vern Raburn
President and CEO, Eclipse Aviation

Engineering, Construction, Agriculture and Manufacturing

GE Aircraft, and Eclipse Aviation. Food processing, another manufacturing sector that has added jobs. Eastern New Mexico is home to the largest mozzarella and cheddar cheese manufacturing plants in the country. By the end of 2006, Merillat Industries will have completed construction of $36 million, 200,000 square foot facility in Los Lunas where they will employ 700 New Mexicans and manufacture cabinets.

According to the New Mexico Department of Labor manufacturing employment is expected to increase 12.8% from 2002 to 2012. Manufacturing is projected to add 4,900 jobs. The largest number of new jobs will be added in the manufacturing of computer and the electronic products sub-sector, followed by food manufacturing. The projection in these sub-sectors calls for job growth of 2,000 jobs or 18% and 1,100 or roughly 21%, respectively. Employment in construction in New Mexico is expected to grow by about 5,600 jobs or 12.4% through 2012. The largest growth will occur in building construction which is expected to increase by about 2,500 jobs followed by heavy and civil engineering construction which is projected to add 1,300 jobs or 15.6%. Specialty construction trade contractors are projected to grow by 1,800 jobs or 7.6%.

Professionals in this field make devices and designs that are attractive yet affordable, functional but also safe.
### Engineering, Construction, Agriculture, Manufacturing

<table>
<thead>
<tr>
<th>Cluster Core Business Functions</th>
<th>Business Vision and Sustainability</th>
<th>Research and Development</th>
<th>Engineering and Design</th>
<th>Production and Manufacturing</th>
<th>Sales and Marketing</th>
<th>Construction and Facilities</th>
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</thead>
<tbody>
<tr>
<td>Entrepreneurship</td>
<td>Basic Science</td>
<td>Product Engineering</td>
<td>Process Engineering</td>
<td>Consumer Sales and Services</td>
<td>Marketing</td>
<td>Construction</td>
</tr>
<tr>
<td>Economics and Management</td>
<td>Applied Research Engineering</td>
<td>Architecture and Drafting</td>
<td>Health, Safety and Environmental Regulation</td>
<td>Marketing</td>
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<tr>
<td>Foreign Languages</td>
<td>Laboratory Testing</td>
<td>Machining, Instrument and Electrical</td>
<td>Maintenance Operations</td>
<td>Administrative Services and Information Support</td>
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<td></td>
</tr>
<tr>
<td>Human Resources Management</td>
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<td>Systems Integration Engineering</td>
<td>Quality Assurance</td>
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<td>Network Systems</td>
<td></td>
</tr>
<tr>
<td>Government Relations</td>
<td></td>
<td></td>
<td>Logistics and Inventory Control</td>
<td>Environmental Systems</td>
<td></td>
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</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Agribusiness</td>
<td>Civil Engineering</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Career Pathways**

- Civil Engineering
- Agribusiness
- Environmental Systems
- Civil Engineering
- Network Systems
Core Business Function Engineering and Design

Architecture and Drafting Pathway

- Design structural and visual features of buildings and outdoor spaces.
- Use manual and computer-aided drafting techniques to design aesthetic, structural and material specifications for buildings and landscapes.
- Design interior and external systems.
- Prepare drawings and blueprints.
- Analyze environmental, social and economic impact of structures.
- Present ideas to client.

<table>
<thead>
<tr>
<th>Minimum Education Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>High School Diploma/Industry Credential</td>
</tr>
<tr>
<td>American Design Drafting Association Certified Drafter</td>
</tr>
<tr>
<td>City Planning Aide $30,000-36,700</td>
</tr>
</tbody>
</table>

Sample Occupations and Average National Wages

Wages listed in the Guidebook are based on national averages and may not be the same as those in all New Mexico communities.

Needed skills include: Calculus; art and art history; computer aided design (CAD); analytical and problem solving skills; accuracy and attention to detail; oral, listening and written communication.

Systems Integration Engineering Pathway

Integrate different technologies and materials to form new products and processes.

- Identify the problem.
- Evaluate hardware and software options available to solve business problems.
- Design ways to integrate needed systems and equipment.
- Develop new uses for materials and technologies.

<table>
<thead>
<tr>
<th>Minimum Education Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>High School Diploma/Industry Credential</td>
</tr>
<tr>
<td>Computer Programmer $57,000-70,000</td>
</tr>
<tr>
<td>Mechanical Engineer $60,500-74,000</td>
</tr>
<tr>
<td>Industrial Engineer $59,400-72,600</td>
</tr>
<tr>
<td>Materials Engineer $61,700-75,300</td>
</tr>
<tr>
<td>Electrical Engineer $65,700-79,700</td>
</tr>
</tbody>
</table>

Sample Occupations and Average National Wages

Wages listed in the Guidebook are based on national averages and may not be the same as those in all New Mexico communities.

Needed skills include: Bachelor’s of Science or Associate’s of Science degree; calculus; electronics; accuracy and attention to detail; technical writing; advanced analytical and problem solving skills.
Make sure business product or service is high quality and reliable.

- Inspect manufactured products.
- Diagnose manufacturing process defects.
- Test manufacturing procedures.
- Inspect and certify materials integrity, grade and quality.
- Issue reports.

### Logistics and Inventory Control Pathway

Oversee purchase, procurement, and storage of business materials, parts and products.

- Analyze inventory procurement needs.
- Analyze inventory storage and security needs.
- Track deliveries and manage records.
- Manage lean manufacturing procedures and systems.

### Quality Assurance Pathway

<table>
<thead>
<tr>
<th>Sample Occupations and Average National Wages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Production Inspector/Tester</td>
</tr>
<tr>
<td>$25,800-31,400</td>
</tr>
<tr>
<td>High School Diploma/Industry Credential</td>
</tr>
<tr>
<td>Minimum Education Required</td>
</tr>
<tr>
<td>Baccalaureate Degree</td>
</tr>
<tr>
<td>Beyond Baccalaureate Degree</td>
</tr>
<tr>
<td>Sample Occupations and Average National Wages</td>
</tr>
<tr>
<td>Materials Inspector</td>
</tr>
<tr>
<td>$25,800-31,400</td>
</tr>
<tr>
<td>Agricultural Inspector</td>
</tr>
<tr>
<td>$28,300-34,300</td>
</tr>
<tr>
<td>Mechanical Inspector</td>
</tr>
<tr>
<td>$25,800-31,400</td>
</tr>
<tr>
<td>Airframe, Power Plant Mechanic</td>
</tr>
<tr>
<td>$41,400-50,500</td>
</tr>
<tr>
<td>Geological Sample Test Technician</td>
</tr>
<tr>
<td>$37,700-45,700</td>
</tr>
<tr>
<td>Quality Management Supervisor</td>
</tr>
<tr>
<td>&gt;$83,000</td>
</tr>
</tbody>
</table>

Wages listed in the Guidebook are based on national averages and may not be the same as those in all New Mexico communities.

Needed skills include: Technical knowledge; technical writing; accuracy and attention to detail; interpersonal and analytical skills; total quality management.

### Logistics and Inventory Control Pathway

<table>
<thead>
<tr>
<th>Sample Occupations and Average National Wages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Materials Recordkeeping</td>
</tr>
<tr>
<td>$22,400-27,200</td>
</tr>
<tr>
<td>High School Diploma/Industry Credential</td>
</tr>
<tr>
<td>Minimum Education Required</td>
</tr>
<tr>
<td>Baccalaureate Degree</td>
</tr>
<tr>
<td>Beyond Baccalaureate Degree</td>
</tr>
<tr>
<td>Sample Occupations and Average National Wages</td>
</tr>
<tr>
<td>Production Clerk</td>
</tr>
<tr>
<td>$33,600-45,000</td>
</tr>
<tr>
<td>Industrial Production Mgr.</td>
</tr>
<tr>
<td>$66,700-81,500</td>
</tr>
<tr>
<td>Purchasing Agent</td>
</tr>
<tr>
<td>$43,500-53,100</td>
</tr>
<tr>
<td>Meter Reader, Utilities</td>
</tr>
<tr>
<td>$26,800-32,000</td>
</tr>
<tr>
<td>Transportation Manager</td>
</tr>
<tr>
<td>$60,000-74,000</td>
</tr>
<tr>
<td>Cargo and Freight Agent</td>
</tr>
<tr>
<td>$31,500-38,900</td>
</tr>
<tr>
<td>Storage, Distribution Mgr.</td>
</tr>
<tr>
<td>$60,600-74,000</td>
</tr>
</tbody>
</table>

Wages listed in the Guidebook are based on national averages and may not be the same as those in all New Mexico communities.

Needed skills include: Mathematics, business strategy; financial accounting; technical writing; accuracy and attention to detail; information research and analysis; computer technology; problem solving.
Agribusiness Pathway

Support the agriculture industry.

- Operate and repair specialized equipment.
- Grow, process, test, store, and analyze farm and ranch products.
- Manage workers and systems.
- Develop new uses for materials and technologies.

<table>
<thead>
<tr>
<th>Sample Occupations and Average National Wages</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>High School Diploma/Industry Credential</strong></td>
</tr>
<tr>
<td>Farm Worker $15,000-18,000</td>
</tr>
<tr>
<td>Agricultural Equipment Operator $16,900-20,700</td>
</tr>
<tr>
<td>Helper-Maintenance and Repair Workers $19,000-23,350</td>
</tr>
<tr>
<td>Cooling and Freezing Equip Operator $20,000-24,000</td>
</tr>
<tr>
<td>Farm Equipment Mechanic $25,300-31,000</td>
</tr>
<tr>
<td>Welder $27,000-33,800</td>
</tr>
<tr>
<td>Rigger $32,400-39,600</td>
</tr>
</tbody>
</table>

Wages listed in the Guidebook are based on national averages and may not be the same as those in all New Mexico communities.

Needed skills include: Technical knowledge; mathematics; electronics; metal working; problem solving skills; teamwork; listening; technical writing.
Core Business Function Construction and Facilities

Construction Pathway

Construct furniture, structures, and buildings and operate construction equipment.

- Build items from wood, stone, cement, steel and other materials.
- Follow government building codes.
- Provide customer service.

<table>
<thead>
<tr>
<th>Minimum Education Required</th>
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</thead>
<tbody>
<tr>
<td>High School Diploma/Industry Credential</td>
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<tr>
<td>Associate Degree</td>
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<tr>
<td>Baccalaureate Degree</td>
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<tr>
<td>Beyond Baccalaureate Degree</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Sample Occupations and Average National Wages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apprenticeship Programs</td>
</tr>
<tr>
<td>Carpenter, Cabinetmaker</td>
</tr>
<tr>
<td>$23,100-30,000</td>
</tr>
<tr>
<td>Studio and Stage Grips</td>
</tr>
<tr>
<td>$18,000-22,300</td>
</tr>
<tr>
<td>Construction Drillers</td>
</tr>
<tr>
<td>$30,200-36,800</td>
</tr>
<tr>
<td>Construction Laborers</td>
</tr>
<tr>
<td>$22,700-27,700</td>
</tr>
<tr>
<td>Engine, Machine Assemblers</td>
</tr>
<tr>
<td>$31,700-38,700</td>
</tr>
<tr>
<td>Paving, Surfacing Operators</td>
</tr>
<tr>
<td>$27,000-33,200</td>
</tr>
<tr>
<td>Operating Engineer</td>
</tr>
<tr>
<td>$32,000-39,000</td>
</tr>
<tr>
<td>Crane and Tower Operators</td>
</tr>
<tr>
<td>$34,600-42,200</td>
</tr>
</tbody>
</table>

Wages listed in the Guidebook are based on national averages and may not be the same as those in all New Mexico communities.

Needed skills include: Technical knowledge; electronics; pre-engineering; woodworking; advanced analytical and problem solving skills; teamwork; listening; technical writing.

Trades, Installation and Repair Pathway

Build, install and repair electronic and mechanical equipment and electrical and plumbing systems.

- Install wiring, pipes, circuits and other system hardware.
- Repair tools and equipment.
- Repair electrical and plumbing systems.
- Operate specialized machinery.
- Follow government building codes.
- Provide customer service.

<table>
<thead>
<tr>
<th>Minimum Education Required</th>
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<tbody>
<tr>
<td>High School Diploma/Industry Credential</td>
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<td>Beyond Baccalaureate Degree</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Sample Occupations and Average National Wages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apprenticeship Programs</td>
</tr>
<tr>
<td>Electric Switch Repairer</td>
</tr>
<tr>
<td>$29,600-36,200</td>
</tr>
<tr>
<td>Electro-Mechanical Tech</td>
</tr>
<tr>
<td>$38,000-46,300</td>
</tr>
<tr>
<td>Locksmith and Safe Repairer</td>
</tr>
<tr>
<td>$27,500-33,500</td>
</tr>
<tr>
<td>Indust Machinery Mechanic</td>
</tr>
<tr>
<td>$35,400-43,000</td>
</tr>
<tr>
<td>Aircraft Engine Specialist</td>
</tr>
<tr>
<td>$41,400-50,500</td>
</tr>
<tr>
<td>Welder/Cutter</td>
</tr>
<tr>
<td>$27,800-$33,800</td>
</tr>
<tr>
<td>Aircraft Body Repairer</td>
</tr>
<tr>
<td>$40,000-50,900</td>
</tr>
<tr>
<td>Elevator Installer and Repairer</td>
</tr>
<tr>
<td>$53,200-65,200</td>
</tr>
<tr>
<td>Maint Worker Machinery</td>
</tr>
<tr>
<td>$30,000-36,400</td>
</tr>
<tr>
<td>Appliance and Tool Repairer</td>
</tr>
<tr>
<td>$29,700-36,100</td>
</tr>
<tr>
<td>Pipefitter</td>
</tr>
<tr>
<td>$37,700-45,900</td>
</tr>
<tr>
<td>Plumber</td>
</tr>
<tr>
<td>$38,000-46,000</td>
</tr>
</tbody>
</table>

Wages listed in the Guidebook are based on national averages and may not be the same as those in all New Mexico communities.

Needed skills include: Mathematics; machine shop; electronics; mechanics; accuracy and attention to detail; technical writing; teamwork, analytical and problem solving skills.
Project Management Pathway

Manage schedule and deliverables for building, scientific or other technical project and supervise team.

- Conduct sophisticated research and financial analyses to estimate project costs.
- Manage project budget.
- Coordinate competing activities and deadlines.
- Manage customer expectations.
- Prepare written and financial reports.

---

### Minimum Education Required

<table>
<thead>
<tr>
<th>High School Diploma/Industry Credential</th>
<th>Associate Degree</th>
<th>Baccalaureate Degree</th>
<th>Beyond Baccalaureate Degree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Certified Project Manager</td>
<td>Real Estate Appraiser $39,400-$48,000</td>
<td>Cost Estimator $46,000-$55,900</td>
<td>Engineering Manager $89,000-$109,000</td>
</tr>
<tr>
<td>Construction Manager</td>
<td>$63,700-$77,700</td>
<td>Chief Operating Officer $79,000-$83,000</td>
<td></td>
</tr>
</tbody>
</table>

### Sample Occupations and Average National Wages

- Certified Project Manager: $39,400-$48,000
- Real Estate Appraiser: $39,400-$48,000
- Cost Estimator: $46,000-$55,900
- Engineering Manager: $89,000-$109,000
- Construction Manager: $63,700-$77,700
- Chief Operating Officer: $79,000-$83,000

Wages listed in the Guidebook are based on national averages and may not be the same as those in all New Mexico communities.

Needed skills include: Calculus; financial accounting; economics; business strategy; advanced interpersonal and analytical skills; technical writing; statistics; information research and analysis; leadership.

---

### Cluster Transferable Skills and Related Pathways

- Entrepreneurship
- Economics and Management
- Foreign Languages
- Human Resources Management
- Government Relations
- Basic Science
- Applied Research Engineering
- Laboratory Testing
- Product Engineering
- Machining, Instrument, and Electrical
- Process Engineering
- Health, Safety, and Environmental Assurance
- Maintenance Operations
- Consumer Sales and Service
- Administrative Services and Information Support
- Network Systems
- Environmental Systems

### Cluster Knowledge and Skills

Are You Interested in a Career in Medicine or Science?

The following pages explain several career paths in Health and Biosciences:

- Applied Research Engineering
- Basic Science
- Medical Treatment Services
- Medical Diagnosis Services
- Para-Professional Medical Treatment
- Para-Professional Medical Diagnosis
- Health Informatics

“New equipment and technologies are revolutionizing the science of modern medicine and helping us meet the extraordinary increase in demand for healthcare services.

But our focus on people care will never be replaceable.”

Noel Clark
CEO,
Carlsbad Mental Health Center

New Mexico has a booming healthcare industry, which has been one of the fastest growing sectors in the state’s economy so far this decade. It is projected by the New Mexico Department of Labor to grow by 30% through 2012. The state also has a steadily growing biosciences sector, a key player in the future high tech economy.

The New Mexico Department of Labor projects 47,870 new jobs will be created in the healthcare sector over the next 6 years. The fastest growth within the health services industry is anticipated to occur within the ambulatory health care services, approaching 44% and growing by 13,170 jobs. Nursing and residential care facilities are projected to add 4,400 jobs, equating to roughly 35% growth, growing from 12,700 jobs in 2002 to 17,200 in 2012. Social assistance employment is projected to increase by 41.4%, rising from 15,300 jobs in 2002 to 21,700 in 2012.

Just as information technology drove economic progress in the latter part of the 20th century, the convergence of advanced technologies in information technology, engineering, and biological sciences is producing widespread opportunities for the development and growth of companies in the 21st century. Nationally, biotechnology will add 400,000 jobs to the U.S. economy in the next decade. These companies are primarily engaged in drug development, medical implants and devices, agriculture and food processing technologies. According to the Biotechnology Industry Organization, New Mexico saw moderate increases in employment from 2001 to 2004 in research and testing, medical labs, medical testing and devices as well as pharmaceuticals. The New Mexico Economic Development Department estimates nearly 100 bioscience and bioscience-related companies are in New Mexico, and that number is growing. New Mexico’s prowess in high-speed computing sets us apart as a location for the growing bioinformatics industry. Supercomputers at Los Alamos and Sandia National Laboratories and the collection of private data mining firms give researchers the power to analyze complex biological interactions and processes. Santa Fe’s National Center for Genome Resources, for example, is a bioinformatics powerhouse, integrating biology, mathematics, and computer sciences to give scientists new research resources.

Professionals in this field contribute the scientific advances and personnel that allows us to live healthy, active lives. The following Career Pathways provide education and training in these fields.
# Health and Biosciences

## Cluster Core Business Functions

<table>
<thead>
<tr>
<th>Scientific Leadership, Discovery</th>
<th>Manufacturing, Facilities</th>
<th>Business Operations</th>
<th>Patient Care</th>
<th>Communications</th>
<th>Regulation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Primary Skills</strong></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Basic Science</td>
<td>Trades, Installation, Repair</td>
<td>Administrative Services and Information Support</td>
<td>Medical Diagnosis Services</td>
<td>Communications</td>
<td>Government Relations</td>
</tr>
<tr>
<td>Entrepreneurship</td>
<td>Logistics and Inventory Control</td>
<td>Human Resources Management</td>
<td>Para-Professional Healthcare Treatment</td>
<td>Consumer Sales and Service</td>
<td>Quality Assurance</td>
</tr>
<tr>
<td>Systems Integration Engineering</td>
<td>Project Management</td>
<td>Information Technology Systems Administration</td>
<td>Para-Professional Healthcare Diagnosis</td>
<td>Information Technology Systems Administration</td>
<td></td>
</tr>
<tr>
<td>Economics and Management</td>
<td>Architecture and Drafting</td>
<td>Legal Services</td>
<td>Health Informatics</td>
<td>Network Systems</td>
<td></td>
</tr>
<tr>
<td>Software Application Development</td>
<td>Culinary Arts</td>
<td>Teaching and Training</td>
<td>Laboratory Testing</td>
<td>Foreign Languages</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Hotel and Resort Management</td>
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</tr>
</tbody>
</table>

| **Transferable Skills**          |                           |                   |              |                |            |

- **Primary Skills** are tasks directly related to the Health and Biosciences cluster.
- **Transferable Skills** are skills that can be applied across different clusters.
Cluster Definition
The career cluster is comprised of courses and/or programs related to planning, managing and providing diagnostic, therapeutic, and information and environmental services in health care and to planning, managing, and providing scientific professional and technical services in the biosciences, including laboratory testing and R&D.

Industry Sectors
- Healthcare
- Information Technology
- Research and Development
- Homeland Security
- Social Services
- Law

Types of Businesses
- Home Medical Equipment
- Hospitals
- Agri-engineering
- Equipment Sales
- Science R&D
- Telemedicine
- Forensics
- Social Work/Counseling
- Environmental, Waste Engineering
- Electronic Records
- Medical Transcription
- Insurance
- Laboratory Testing
- Pharmaceuticals
- Disaster Management

Core Business Function Scientific Discovery, Leadership

Basic Science Pathway

Conduct scientific experiments to produce new discoveries.
- Invent new products, tools and experiments.
- Discover new equations, materials, reactions, behaviors that push scientific research farther ahead.
- Perform tests to show that research theories are correct.

<table>
<thead>
<tr>
<th>Sample Occupations and Average National Wages</th>
</tr>
</thead>
<tbody>
<tr>
<td>High School Diploma/Industry Credential</td>
</tr>
<tr>
<td>Radiologic Technician</td>
</tr>
<tr>
<td>Medical Laboratory Technician</td>
</tr>
<tr>
<td>Manufacturing Technician</td>
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<tr>
<td></td>
</tr>
</tbody>
</table>

Wages listed in the Guidebook are based on national averages and may not be the same as those in all New Mexico communities.

Needed skills include: PhD, Master’s of Science (MS), Bachelor’s of Science (BS); associate’s degree-level technicians; critical thinking; professional research experience.
**Applied Research Engineering Pathway**

Conduct scientific and engineering research to solve industry problems and create innovation.

- Invent new products and processes.
- Test products and processes.

| Core Business Function | Patient Care |

| **Medical Treatment Services Pathway** |

Provide professional medical therapy as licensed.

- Observe and consult with patient regarding symptoms.
- Prescribe needed therapies.
- Provide follow up treatment.
- Follow medical, legal, cultural and ethical rules.
- Document services.

<table>
<thead>
<tr>
<th>Minimum Education Required</th>
<th>High School Diploma/Industry Credential</th>
<th>Associate Degree</th>
<th>Baccalaureate Degree</th>
<th>Beyond Baccalaureate Degree</th>
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</thead>
<tbody>
<tr>
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</tbody>
</table>

| Sample Occupations and Average National Wages |

Wages listed in the Guidebook are based on national averages and may not be the same as those in all New Mexico communities.

---

**Needed skills include:** Bachelor’s of Science (BS) in electrical, mechanical, chemical, physical, biological engineering; associate’s degree-level technicians; critical thinking; professional research experience.

---

**Needed skills include:** PhD, MD, DO, RN or other professional degree; Bachelor’s of Science (BS); calculus; biology; chemistry; social sciences; anatomy; foreign languages; world culture; leadership.
Para-Professional Healthcare Treatment Pathway

Provide para-professional medical therapy as licensed.

- Observe and consult with patient regarding symptoms.
- Prescribe needed therapies.
- Provide follow up treatment.
- Follow medical, legal, cultural and ethical rules.
- Document services.

Minimum Education Required

<table>
<thead>
<tr>
<th>High School Diploma/Industry Credential</th>
<th>Associate Degree</th>
<th>Baccalaureate Degree</th>
<th>Beyond Baccalaureate Degree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Home Health Aide</td>
<td>Veterinary Tech</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$16,700-20,300</td>
<td>$22,800-27,800</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physical Therapist Aide</td>
<td>Medical Assistant</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$19,300-23,300</td>
<td>$22,500-27,500</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Emergency Medical Tech</td>
<td>Massage Therapist</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$23,100-26,100</td>
<td>$29,200-35,200</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Certified Nursing Assistant</td>
<td>Surgical Technician</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>$31,000-37,800</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Certified Medical Assistant</td>
<td>Dental Hygienist</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>$54,000-66,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Certified Dental Assistant</td>
<td>Respiratory Therapist</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>$40,100-48,100</td>
<td></td>
<td></td>
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<tr>
<td>Ninuclear Med Technologist</td>
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</tr>
<tr>
<td></td>
<td>$52,200-63,800</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Sample Occupations and Average National Wages

Wages listed in the Guidebook are based on national averages and may not be the same as those in all New Mexico communities.

Needed skills include: Technical knowledge; mathematics; science; world culture; accuracy and attention to detail; advanced listening, oral and written communication skills; teamwork; analytical thinking and problem solving.

Medical Diagnosis Services Pathway

Provide professional medical diagnoses as licensed.

- Observe and consult with patient regarding symptoms.
- Evaluate test data and/or diagnose needed therapies.
- Follow medical, legal, cultural and ethical rules.
- Document services.

Minimum Education Required

<table>
<thead>
<tr>
<th>High School Diploma/Industry Credential</th>
<th>Associate Degree</th>
<th>Baccalaureate Degree</th>
<th>Beyond Baccalaureate Degree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clinical Lab Technologist</td>
<td>Nutritionist</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$42,100-51,300</td>
<td>$39,900-48,700</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coroner</td>
<td>Speech Pathologist</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$43,500-53,500</td>
<td>$48,700-58,700</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medical Scientist</td>
<td>Radiologist</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$54,200-66,200</td>
<td>$125,500-153,500</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Sample Occupations and Average National Wages

Wages listed in the Guidebook are based on national averages and may not be the same as those in all New Mexico communities.

Needed skills include: PhD, MD, DO, RN or other professional degree; Bachelor’s of Science (BS); calculus; biology; chemistry; social sciences; anatomy; foreign languages; public speaking; leadership.
Para-Professional Healthcare Diagnosis Pathway

Provide para-professional medical diagnoses as licensed.
- Observe and consult with patient regarding symptoms.
- Evaluate test data and/or diagnose needed therapies.
- Follow medical, legal, cultural and ethical protocols.
- Document services.

<table>
<thead>
<tr>
<th>High School Diploma/Industry Credential</th>
<th>Associate Degree</th>
<th>Baccalaureate Degree</th>
<th>Beyond Baccalaureate Degree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phlebotomist</td>
<td>Cardiovascular Technologist $35,400-43,400</td>
<td>Biological Technician $31,000-37,600</td>
<td></td>
</tr>
<tr>
<td>Medical Laboratory Technician</td>
<td>Radiologic Technologist $40,300-49,100</td>
<td>Forensic Science Technician $40,400-48,400</td>
<td></td>
</tr>
<tr>
<td>Diagnostic Med Sonographer</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Sample Occupations and Average National Wages

Wages listed in the Guidebook are based on national averages and may not be the same as those in all New Mexico communities.

Health Informatics Pathway

Analyze and deliver health information.
- Analyze, code and catalogue health information.
- Collect and analyze scientific data.
- Communicate health information to the public.
- Deliver health education.
- Oversee healthcare operations.

<table>
<thead>
<tr>
<th>High School Diploma/Industry Credential</th>
<th>Associate Degree</th>
<th>Baccalaureate Degree</th>
<th>Beyond Baccalaureate Degree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Customer Service Rep</td>
<td>$24,500-30,000</td>
<td>$21,000-26,600</td>
<td>Healthcare Manager $61,500-</td>
</tr>
<tr>
<td>Medical Coder</td>
<td>$25,800-31,400</td>
<td>$40,400-48,400</td>
<td>$137,000-156,00</td>
</tr>
<tr>
<td>Customer Service Supvr</td>
<td>$37,700-46,000</td>
<td>$77,700-94,900</td>
<td>$74,500-91,000</td>
</tr>
</tbody>
</table>

Sample Occupations and Average National Wages

Wages listed in the Guidebook are based on national averages and may not be the same as those in all New Mexico communities.

Needed skills include: Technical knowledge; mathematics; science; foreign languages; world culture; accuracy and attention to detail; advanced listening, oral and written communication skills; teamwork; analytical thinking and problem solving.
Health and Biosciences Cluster Transferable Skills and Related Pathways

- Entrepreneurship
- Systems Integration Engineering
- Economics and Management
- Software Application Development
- Construction
- Trades, Installation, Repair
- Logistics and Inventory Control
- Project Management
- Culinary Arts
- Architecture and Drafting
- Hotel and Resort Management
- Business Financial Management and Accounting
- Administrative Services and Information Support
- Human Resources Management
- Information Technology Systems Administration
- Legal Service
- Teaching and Training
- Laboratory Testing
- Marketing
- Communications
- Consumer Sales and Service
- Information Technology Systems Administration
- Network Systems
- Foreign Languages
- Health, Safety and Environmental Regulation
- Government Relations
- Quality Assurance

Cluster Knowledge and Skills

Are You Interested in a Career in the Tourist Industry?

The following pages explain several career paths in Hospitality and Tourism:

- Restaurant Management
- Resort Management
- Destination and Events Management
- Culinary Arts
- Recreation and Gaming
- Environmental, Historic and Cultural Preservation

“New Mexico cannot afford the continued loss of our best and brightest students to states that offer greater economic opportunity.

Entrepreneurism is the counter to this brain drain and must be encouraged as a major component of public education.”

Preston Cox, Founder, Embudo Station

New Mexico is recognized as one of the world’s leading tourist destinations. Its rich, ancient Native American and Hispanic history, art, peoples, cultures, traditions, and landscapes are virtually unparalleled in the United States and around the globe.

The state’s Hospitality and Tourism industries are crucial to sustaining the New Mexico economy, and represent a fundamental component of its future promise.

The New Mexico Department of Labor projects this industry will grow by 27% or create 23,300 new jobs over the next 6 years. The Tourism Association of New Mexico estimate their industry generates over $4.5 billion in expenditures annually and is New Mexico’s second largest private sector industry. Projections say the industry will continue to grow.

Food services and drinking places, the largest sector of employment in the industry, are projected to grow from 58,900 jobs to 73,600 or 25% through 2012 according to the New Mexico Department of Labor. Accommodations jobs are expected to grow by 19%, growing from 13,700 to 16,300 jobs. Amusement, gambling and recreation industries are expected to experience faster than average growth. This sub-sector is expected to create 5,300 jobs, growing from 11,500 in 2002 to 16,900 in 2012 or 46%.

Professionals in this field preserve, protect and promote New Mexico’s cultural and recreational heritage and offer the services that make them available to visitors and the public. The following Career Pathways provide education and training necessary to deliver these services.
### Hospitality and Tourism

<table>
<thead>
<tr>
<th>Cluster Core Business Functions</th>
<th>Management</th>
<th>Production</th>
<th>Sales and Service</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Career Pathways</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Entrepreneurship</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Restaurant Management</td>
<td></td>
<td>Visual Arts</td>
<td>Consumer Sales and Service</td>
</tr>
<tr>
<td>Hotel and Resort Management</td>
<td></td>
<td>Performing Arts</td>
<td>Marketing</td>
</tr>
<tr>
<td>Destination and Events Management</td>
<td></td>
<td>Culinary Arts</td>
<td>Communications</td>
</tr>
<tr>
<td>Administrative and Information Support</td>
<td></td>
<td>Foreign Languages</td>
<td>Logistics and Inventory Control</td>
</tr>
<tr>
<td>Business Financial Management and Accounting</td>
<td>Recreation and Gaming</td>
<td>Environmental, Historic and Cultural Preservation</td>
<td></td>
</tr>
<tr>
<td>Media Technology</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Construction</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trades, Installation and Repair</td>
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</tbody>
</table>
Cluster Definition

The career cluster is comprised of courses and/or programs related to hospitality and tourism and to planning, managing and providing lodging, food, recreation, convention and tourism, and related planning and support services such as travel-related services.

Industry Sectors

- Parks
- Cultural and Historical Sites
- Hotels and Lodging
- Gaming
- Food Services
- Travel and Tourism
- Wholesale and Retail Trade

Types of Businesses

- Travel
- Tours
- Restaurants
- Catering
- Hotels/Bed and Breakfast Inns
- Resorts
- Casinos
- Special Event Planning
- Camps
- Retail Trade
- Groundskeeping and Landscaping
- Logistics/Warehousing/Facilities
- Visitors and Convention Bureaus
- Marketing
- Ticket Sales
- Equipment Rental
- Transportation

Core Business Function Management

Restaurant Management Pathway

Provide food and beverage services and manage restaurant businesses.

- Recruit, hire, train, and retain high-quality employees who focus on customer service.
- Serve customer needs for food and beverage services.
- Manage business activities and recordkeeping.
- Hire/train reliable personnel.
- Maintain health and safety rules.

Sample Occupations and Average National Wages

<table>
<thead>
<tr>
<th>Sample Occupations</th>
<th>Minimum Education Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>Waiter/Waitress</td>
<td>High School Diploma/Industry Credential</td>
</tr>
<tr>
<td>$12,600-$15,400</td>
<td>$13,900-$16,900</td>
</tr>
<tr>
<td>Small Business Owner</td>
<td>$ market-based*</td>
</tr>
<tr>
<td>$79,000-$83,000</td>
<td>$83,000</td>
</tr>
<tr>
<td>Dishwasher</td>
<td>Bartender</td>
</tr>
<tr>
<td>$14,500-$17,700</td>
<td>Cashier</td>
</tr>
<tr>
<td>$29,200-$35,600</td>
<td>Store Manager</td>
</tr>
<tr>
<td>ProStart Certified Kitchen Manager</td>
<td></td>
</tr>
</tbody>
</table>

Wages listed in the Guidebook are based on national averages and may not be the same as those in all New Mexico communities.

Needed skills include: Business acumen; advanced listening, interpersonal and oral communication skills; financial accounting; problem solving; computer technology.

* There are a number of variables that affect the income of entrepreneurs and small business owners, and as a result there are no reliable national salary data for these occupations.
Hotel and Resort Management Pathway

Manage lodging and hospitality services.

- Recruit, hire, train, and retain high-quality employees who focus on customer service.
- Provide local telephone, business office, Internet, finance, dining, recreational, and retail products and services.
- Assure clean, secure and comfortable accommodations.
- Manage staff and customer relations.
- Oversee business accounts.
- Respond to customer requests and complaints.

<table>
<thead>
<tr>
<th>Minimum Education Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>High School Diploma/Industry Credential</td>
</tr>
<tr>
<td>Housekeeping Cleaners</td>
</tr>
<tr>
<td>Hotel, Motel Desk Clerk</td>
</tr>
<tr>
<td>Gaming Cage Worker</td>
</tr>
<tr>
<td>Concierge</td>
</tr>
<tr>
<td>Gaming Investigator</td>
</tr>
</tbody>
</table>

Sample Occupations and Average National Wages

Wages listed in the Guidebook are based on national averages and may not be the same as those in all New Mexico communities.

Needed skills include: Mathematics; financial accounting; business strategy; customer service; advanced oral, listening and interpersonal communication skills; computer technology; security and legal training.

Destination and Events Management Pathway

Provide travel services and coordinate public activities and events.

- Recruit, hire, train, and retain high-quality employees who focus on customer service.
- Determine customer needs and propose solutions; deliver travel and transportation services.
- Collect and coordinate destination information.
- Manage event plans and logistics.
- Maintain computer data systems.

<table>
<thead>
<tr>
<th>Minimum Education Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>High School Diploma/Industry Credential</td>
</tr>
<tr>
<td>Counter and Rental Clerk</td>
</tr>
<tr>
<td>Taxi Driver</td>
</tr>
<tr>
<td>Receptionist, Information Clerk</td>
</tr>
<tr>
<td>Travel Clerk</td>
</tr>
<tr>
<td>Ticket Agent</td>
</tr>
<tr>
<td>Flight Attendant</td>
</tr>
</tbody>
</table>

Sample Occupations and Average National Wages

Wages listed in the Guidebook are based on national averages and may not be the same as those in all New Mexico communities.

Needed skills include: Accuracy and attention to detail; technical writing; listening, analytical and problem solving skills; foreign languages; teamwork; computer technology.

* There are a number of variables that affect the income of entrepreneurs and small business owners, and as a result there are no reliable national salary data for these occupations.
Culinary Arts Pathway

Provide services related to food and cooking.

- Select and purchase products and ingredients.
- Prepare and cook food.
- Calculate measurements and recipes.
- Test cooking and baking methods.
- Inspect and certify the integrity, grade and quality of food ingredients.
- Follow safety standards and regulations.

<table>
<thead>
<tr>
<th>Minimum Education Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>High School Diploma/Industry Credential</td>
</tr>
<tr>
<td>Fast Food Preparation $13,200-16,200</td>
</tr>
<tr>
<td>Cook, Fast Food $13,300-16,100</td>
</tr>
<tr>
<td>Food Preparation Worker $15,200-18,600</td>
</tr>
<tr>
<td>Cook, Restaurant $18,800-21,600</td>
</tr>
<tr>
<td>Food Preparation Supervisor $23,100-28,300</td>
</tr>
</tbody>
</table>

Sample Occupations and Average National Wages

Wages listed in the Guidebook are based on national averages and may not be the same as those in all New Mexico communities.

Needed skills include: Mathematics; technical knowledge; technical writing; accuracy and attention to detail; information research and analysis; analytical and problem solving skills; safety and quality management.

Recreation and Gaming Pathway

Coordinate indoor and outdoor recreational attractions and activities.

- Develop recreational and gaming activities.
- Maintain public safety and regulations.
- Market and sell recreational products and services.
- Deliver professional services.
- Supervise individuals and groups.
- Make public presentations.

<table>
<thead>
<tr>
<th>Minimum Education Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>High School Diploma/Industry Credential</td>
</tr>
<tr>
<td>Lifeguard, Ski Patrol, Other Rec $15,000-18,400</td>
</tr>
<tr>
<td>Gaming Dealer $12,900-15,700</td>
</tr>
<tr>
<td>Animal Trainer $22,000-26,800</td>
</tr>
<tr>
<td>Motor Boat Operator $29,300-35,800</td>
</tr>
</tbody>
</table>

* There are a number of variables that affect the income of entrepreneurs and small business owners, and as a result there are no reliable national salary data for these occupations.

Wages listed in the Guidebook are based on national averages and may not be the same as those in all New Mexico communities.

Needed skills include: Technical knowledge; mathematics; advanced interpersonal and oral communication skills; teamwork; technical writing; information research and analysis; problem solving.
Environmental, Historic and Cultural Preservation Pathway

Manage and maintain sites and lands open to the public.

- Maintain and protect public lands.
- Monitor environmental conditions.
- Manage access to cultural and historic sites.
- Supervise individuals and groups.
- Manage customer expectations.
- Prepare written presentations and reports.

<table>
<thead>
<tr>
<th>Minimum Education Required</th>
<th>High School Diploma/Industry Credential</th>
<th>Associate Degree</th>
<th>Baccalaureate Degree</th>
<th>Beyond Baccalaureate Degree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample Occupations and Average National Wages</td>
<td>Landscaping, Groundskeeping $18,000-22,600</td>
<td>Tour Guide $17,300-21,100</td>
<td>Forester $44,000-53,200</td>
<td>Environment Specialist $46,700-57,100</td>
</tr>
<tr>
<td></td>
<td>Fisher $25,400-31,000</td>
<td>Animal Breeder $26,700-32,500</td>
<td>Park Naturalist $47,100-$57,500</td>
<td>Archeologist/Anthropologist $40,500-48,000</td>
</tr>
<tr>
<td></td>
<td>Bus Driver $27,600-33,600</td>
<td>Farmer, Rancher $34,800-42,400</td>
<td>Fish Hatchery Manager $45,700-$55,700</td>
<td>Ethnic, Cultural Studies Professor $50,000-$61,200</td>
</tr>
<tr>
<td></td>
<td>Forest Fire Fighter $34,800-42,500</td>
<td>Horticultural Supervisor $32,400-39,600</td>
<td></td>
<td>Sociologist $51,100-$62,300</td>
</tr>
</tbody>
</table>

Wages listed in the Guidebook are based on national averages and may not be the same as those in all New Mexico communities.

Needed skills include: Mathematics; world culture; history; biology; technical writing; interpersonal and communication skills; statistics; information research and analysis; public speaking.

Cluster Transferable Skills and Related Pathways

- Entrepreneurship
- Administrative Services and Information Support
- Business Financial Management and Accounting
- Visual Arts
- Performing Arts
- Foreign Languages
- Media Technology
- Construction
- Consumer Sales and Service
- Marketing
- Communications
- Logistics and Inventory Control

Cluster Knowledge and Skills

Appendices

Why Career Clusters?

Career Pathways Education and Training

United States Department of Education National Career Clusters Initiative

Economic Development: the Growth Engine to All Careers
Why Career Clusters?

The Governor’s Workforce Coordination and Oversight Committee

Governor Bill Richardson is focused on improving economic and educational opportunities for New Mexicans in the 21st century, and has created new agencies and mandates to fulfill that charge.

Executive Order 2004-004 establishes the Governor’s Workforce Coordination and Oversight Committee. The Order makes multiple agencies jointly responsible for the development and coordination of a system of lifelong learning that prepares citizens of all ages with the academic, technical and personal skills to support the New Mexico economy.

The Workforce Coordination and Oversight Committee is chaired by Terri L. Cole, chair of the New Mexico Workforce Development Board and CCE, President and CEO of the Greater Albuquerque Chamber of Commerce.

Chair Cole leads a group made up of seven New Mexico agency heads:

- Danny Sandoval, Deputy Cabinet Secretary, Department of Children, Youth and Families,
- Rick Homans, Cabinet Secretary, Economic Development Department,
- Beverlee J. McClure, Cabinet Secretary, Higher Education Department,
- Katie Falls, Deputy Cabinet Secretary, Human Services Department,
- Conroy Chino, Cabinet Secretary, Department of Labor,
- Veronica Garcia, Cabinet Secretary, Public Education Department,
- Len Malry, Interim Executive Director, Office of Workforce Training and Development.

The committee includes several private-sector representatives:

- Tom Battin, Chairman of the Board of State National Bank,
- Norman Becker, a Consultant and former President and CEO of Lovelace Sandia Health System,
- Debbie Johnson CEO of Rick Johnson Company, and
- Joseph Semprevivo, CEO of Joseph’s Lite Cookies.

Public-sector leaders:

- David Lucero, Legislative Finance Committee Analyst,
- Rebecca Rowley, Clovis Community College Interim President,
- Sue Cleveland, Rio Rancho Schools Superintendent, and

Labor:

- Chris Romero, President IUPAT.
And the legislature:

- State Representative Brian Moore,
- State Senator Ben Altamirano, and
- Analyst David Lucero.

Governor Richardson has charged these leaders to direct the state’s economic and educational resources and goals toward a common vision for New Mexico in the New Economy.

**New Mexico Career Clusters**

Industry clusters create economies of scale by grouping together a variety of different businesses within an industry sector to share infrastructure, know-how, labor, and sometimes even customers.

Career clusters take this concept further by bundling several industry sectors that are related by product and/or function. Businesses across these sectors share common resource needs, including labor, and employ workers who have similar characteristics and competencies.

New Mexico Career Clusters are:

- Arts and Entertainment
- Business Services
- Communications and Information
- Energy and Environmental Technologies
- Engineering, Construction, and Manufacturing
- Health and Biosciences
- Hospitality and Tourism

These clusters comprise industries in which New Mexico has special value or competitive advantage.

**The Purpose of the New Mexico Career Clusters Initiative**

To move beyond its reliance on low-wage service jobs toward higher-value, higher paying knowledge jobs, New Mexico must make a skillful, protracted investment in its workforce. The state does not have the luxury merely to focus on gaps in the labor force—increasing learning gains among young people, for example, or retraining managers to replace retiring superiors. At the same time it must improve its overall economic outlook.

New Mexico must adopt an economic growth strategy that prepares it to rival states like Massachusetts, Washington, Maryland, California, and Virginia for venture capital investment and business activity in the industries that will dominate the future: bio- and nano-engineering, information technology, and renewable and advanced energy.²
Therefore, New Mexico must have an aggressive approach to:

1. produce highly skilled workers who can
2. support the scientific discovery and industry advancement that leads to a positively reinforcing cycle of increased investment and new jobs.

The New Mexico Career Clusters initiative provides the catalyst to achieve this goal.

The purpose of the career clusters strategy for New Mexico is twofold.

First, it provides the state with a list of strategic industries and jobs that is targeted but not too narrow. Rather than trying to dominate in a single industry—nano-manufacturing, for example, where other states already have a head-start—New Mexico’s Engineering, Construction, and Manufacturing cluster provides strong labor and infrastructure capacity to help the state compete a variety of businesses.

Second, career clusters offer individuals valuable options. They prepare workers to face the uncertainties and volatility of the 21st century job market with the skills to be successful in a number of potential careers.

This report from the Governor’s Workforce Coordination and Oversight Committee serves as a guidebook for parents, students, educators, job seekers and their counselors, policymakers, economic developers, and employers.

It includes detailed information about the educational programs that the Coordination and Oversight Committee intends to develop for each of the 7 career clusters as well as information about prospective occupations and wages associated with the clusters.

The next section details the state’s strategy for promoting educational pathways in the career clusters among youth and adults.

The subsequent section shows the link between the clusters and the state’s current and projected labor market demand.

Career Pathways Education and Training

Improving the state’s talent pool is the first step in New Mexico’s plan for building its competitiveness.

The Department of Labor has determined that 80% of the fastest growing jobs in the United States require college level training, including in math and science.

This guidebook, therefore, emphasizes the development of post-secondary level education and training programs that improve the employability and earnings of young people but that also are easily modified to produce the same results for adults.

Education and training in the 7 career clusters for both youth and adults will be delivered in career pathways, a teaching method that has been devised to promote lifelong learning.

Career Pathways are technical or career training in which students follow a sequential program of study from basic through progressively more advanced learning.
Career pathways have several defining features. They:

- Typically are delivered by community colleges in cooperation with secondary schools.
- Begin with basic skills. (The chart below outlines the career pathways progression from basic to more advanced learning.)
- Provide cluster-specific training that includes both curricular and extramural instruction to integrate education with work.
- Follow a joined progression from one level of learning to the next (see chart).
- Propel individuals toward “successively higher levels of skills, responsibility and wages.”

![The Career Pathways Model](chart.png)

As shown in the example above, career pathways are a flexible model of education and training that takes advantage of the economies of scale afforded by career clusters and leverages state resources efficiently.

Students can enter and exit a training program at multiple positions, depending on their level of skill and interest.

- Educational institutions can craft curricula that build directly on work completed at the previous educational level or in a prior training program, thereby increasing the chances of success for the student.
- There is a maximum use of state resources because schools, colleges, universities and regions develop expertise for teaching both youth and adults in the career pathways that make sense for their region and their customers.
Training and Retraining Adults in the Labor Force

It is the Governor’s intention that the 7 New Mexico Career Clusters guide strategic planning for economic development, workforce training, and public secondary and post-secondary education for the next decade.

Career pathways like those shown in this guidebook will be delivered for adults already in the labor force through the state’s community colleges and universities. Counseling and information about pathways training will be available in:

- Local workforce One Stops;
- Adult education, literacy and GED program offices;
- Community and tribal centers;
- Income and employment support offices;
- Regional industry, economic development and chamber of commerce associations; and
- Community colleges.

The Workforce Coordination and Oversight Committee is proposing that local workforce training boards contribute to the development of career pathways priorities for their regions. Each year board staff would meet with representatives of the public and higher education departments to select the education and training priorities for the region. Those decisions would be submitted to the Coordination and Oversight Committee for alignment with state priorities and approval for funding.

Public School Career Pathways

Fifty years ago only about 10% of the U.S. population received a college degree; nearly half of the population now receives some post-secondary education, and economists predict that in the future 70% of all jobs will require college level education or training.4

In today’s world, public schools have an unprecedented new responsibility to prepare all students for post-secondary level learning and the demands of the modern workplace. Technical education programs are needed to provide employers with specialized industry professionals, but “old school” career and technical education is no longer sufficiently rigorous to prepare workers for the challenges they will confront at work.

High school-based career and technical education (CTE) is being replaced across the country with career pathways programs that offer post-secondary level technical degrees beginning in secondary school.

Grades 9-14 programs are delivered by community colleges in courses that blend community college and public school faculty, standards, and curricula, and are being actively promoted in states like Virginia, Illinois, Florida and Maryland. Maryland and Virginia, for example, both create incentives and opportunity for high school students to complete college credit.

Career pathways are a good means for New Mexico to fulfill its new requirements for a highly skilled workforce. They help students explore and prepare for demanding careers—and for completing the college level learning they need to be successful in those careers—while making it easy for them to do so as part of their public school coursework.
It has been established that dropouts, under-performing and other at-risk kids do better in an academically challenging environment.\textsuperscript{5} The key for improved results in high school is to step-up, not down, demands on students.

Community college technical education programs achieve three things that traditional CTE programs do not.

- They inject needed academic rigor and post-secondary level experience into high school curricula.
- By aligning high school curricula and teaching standards with college level coursework, they smooth students’ entry into and advancement through higher education, lessening the chance that they will drop out before gaining the skills they need for success.

They coordinate with employers and other community partners to ensure that students are properly prepared for the real-world workforce.

The process to define these career pathways included:

- Review of the 16 nationwide career clusters established by the United States Department of Education (see page 74).
- Coordination with the existing Public Education Department career clusters initiative.
- Consultation in focus groups (see page 77) with industry leaders to identify the workforce competencies and academic and technical skills necessary to serve the 7 career clusters.
To boost adoption of career pathways strategies nationwide, the U.S. Department of Education has defined 16 career clusters. The following graphic describes how the 7 New Mexico Career Clusters incorporate the national career clusters.

| Business, Management & Administration          | Arts and Entertainment |
| Government & Public Administration            | Business Services      |
| Education & Training                          | Communications and Information |
| Finance                                      | Energy and Environmental Technologies |
| Law, Public Safety & Security                 | Engineering, Construction and Manufacturing and Agriculture |
| Information Technology                        | Health and Biosciences  |
| Human Services                               | Hospitality and Tourism |

| Architecture and Construction                |
| Manufacturing                               |
| Transportation, Distribution & Logistics    |
| Science, Technology, Engineering & Mathematics |
| Agriculture, Food & Natural Resources       |
| Health Science                              |
| Hospitality & Tourism                       |
New Mexico must adopt an economic growth strategy that prepares it to rival states like Massachusetts, Washington, Maryland, California, and Virginia for venture capital investment and business activity in the industries that will dominate the future: bio and nano engineering, information technology, and renewable and advanced energy.

New Mexican students, parents, teachers, policy makers, local planners, economic developers, and businesses must have credible evidence that the state’s education and workforce development efforts are keeping pace with the needs of the rapidly changing state economy. The Coordination and Oversight Committee will ensure that economic and educational planning decisions are based on a common set of predictive data and a shared vision of the future.
Data on Current and Prospective Jobs

Prior to defining the state’s strategic career clusters, members of the Coordination and Oversight Committee reviewed data on existing jobs, business activity and workers from a number of sources, including the following. Guidebook users may peruse these sites and contact the economic research representatives at each agency for up-to-date statistics.

- **Labor Market Information (LMI) Data**, available through the New Mexico Department of Labor: [http://www.dol.state.nm.us/dol_lmif.html](http://www.dol.state.nm.us/dol_lmif.html)
  Contact: Herb Greenwall
  Herb.greenwall@state.nm.us

- **New Mexico Workforce Connection**: [http://jobs.state.nm.us](http://jobs.state.nm.us)
  Contact: Stephen Eastey
  Stephen.easley@state.nm.us

- **Higher Education Performance and Programmatic Information**, available through the Higher Education Department website: [http://www.hed.state.nm.us/](http://www.hed.state.nm.us/)
  Contact: Paul Landrum
  Paul.landrum@state.nm.us

- **Public Education Performance and Programmatic Data**, available through the Public Education Department: [http://www.ped.state.nm.us/](http://www.ped.state.nm.us/)
  Contact: Robert Piro
  Robert.piro@state.nm.us

The 7 career clusters promote New Mexico’s economic development target industries, which include:

- Aviation and Aerospace
- Clean Energy
- Digital Media
- Food Processing
- High Tech
- Maquila Suppliers
- Technology and Finance Customer Service Centers

New Mexican students, parents, teachers, policy makers, local planners, economic developers, and businesses must have credible evidence that the state’s education and workforce development efforts are keeping pace with the needs of the rapidly changing state economy.

The Workforce Coordination and Oversight Committee has identified the business and career clusters that are the foundation for New Mexico’s future economy and consulted with industry leaders to identify the workforce skill sets needed to grow these clusters. The Committee’s next charge is to put in place a system to produce accurate projections of labor market supply and demand and make that information available at workinnewmexico.gov.
Community Leadership

New Mexico’s Workforce Coordination and Oversight Committee is working in partnership with the New Mexico Public Education (PED) and Higher Education (HED) Departments to implement community college-led career pathways in the 7 Career Clusters.

This Guidebook coincides with the statewide launch of the PED career pathways initiative. The Guidebook was put together by Public Works following review of recent reports and analyses of career pathways education reform and research into high quality public school, community college, and state-level technical education best practices in New Mexico and other states.

The cluster descriptions and career pathways were provided by industry representatives, who met with organizers in industry focus groups described below. These and other industry leaders will continue to advise the Career Clusters initiative throughout its implementation. A community group in Clovis, New Mexico, reviewed the Career Clusters Guidebook and contributed to its content and shape.

Arts and Entertainment

- Roberta Brashears, Gallery Director, Nedra Matteucci Fine Art
- Loie Fecteau, Director, New Mexico Arts Division
- Gregory Heitman, Founder and General Director, Santa Fe Symphony Orchestra
- Joyce Ice, Director, New Mexico Museum of International Folk Art
- Tobi E. Ives, Workforce Training Administrator, New Mexico Film Office
- Liz Kellog, Director of Human Resources, The Santa Fe Opera
- David Mendez, New Mexico Department of Cultural Affairs
- Tim Rogers, Curator, New Mexico Museum of Fine Arts
- Birgit Salazar, Deputy Secretary, New Mexico Department of Cultural Affairs
- Lisa Strout, Director, New Mexico Film Office

Business Services

- Ann John, Director of Credit, Financial Shared Services, Medical Products and Services, Cardinal Health
- Debi Kao, Credit Manager, Cardinal Health
- Mark Lautman, Director of Economic Development, Mesa del Sol
- Marie Longserre, President and CEO, Santa Fe Business Incubator
- Len Malry, Deputy Director, Office of Workforce Training and Development
- Jeff Parker, Area Manager, Manpower
- Jennifer Riordan, Vice President Public and Community Relations, Citi Cards
- Barbara Stoller, Director Small Business Innovation Research Outreach Programs, Technology Ventures Corporation
- Lonnie Talbert, Site President, Citi Cards

Communications and Information

- Leo Baca, Director, Government Relations and External Affairs, Qwest
- Bonnie Bakal, Vice President of Medication Transcription Development, dtsAmerica
- Stephen Easley, CIO, New Mexico Office of Workforce Training and Development
- Len Malry, Deputy Director, New Mexico Office of Workforce Training and Development
- Jennifer Martin, President and CEO, Xynergy Web Development
- Steve Wedeen, Principal, Vaughn Wedeen Creative
Energy and Environmental Technologies

- Odes Caster, Principal, Sacred Power Corporation
- Debra Inman, Economic Development Representative, PNM
- Ben Luce, Policy Director and Chair, Coalition for Clean affordable Energy
- Gary Moore, Employment and Recruitment Manager People Service, PNM
- Mike Orshan, former Director Science and Technology, New Mexico Department of Economic Development
- Ed Rios, General Manager, Giant Refinery Gallup
- Russell "Rusty" Schmit, President and CEO, Advent Solar
- Denise Wadkins, Director of Human Resources, Advent Solar

Engineering, Construction and Manufacturing

- Kendal Bilau, Founder, Kendal Precision Machining
- Karen Cook, Founder, EECOM
- Joe Crawford, Executive Vice President, ACME Worldwide Enterprises
- David Keicher, Chief Technology Officer, Optomec
- Mark Lautman, Director of Economic Development, Mesa del Sol
- Kenneth Manicki, Senior Program Manager, New Mexico Economic Development Department
- Tina Rulo, Vice President Human Resources and Administration, Eclipse Aviation
- Paula Schrimsher, Education Manager, Workforce Development, Intel Corporation

Health and Biosciences

- Bonnie Bakal, Vice President of Medical Transcription Development, dts America
- Patricia Boyle, Executive Director, New Mexico Organization of Nurse Executives
- Joie Glenn, Executive Director, New Mexico Association for Home and Hospice Care
- Jody Knox, Community Member
- Allison Kozeliski, Executive Director, New Mexico Board of Nursing
- Sherri Milone, CEO, Lovelace Women's Hospital
- Paul V. Romero, Chief of Workforce Issues, New Mexico Department of Health
- Carol Shelton, Director of Human Resources, Lovelace Health System

Hospitality and Tourism

- Debbie Scott, Executive Director, Tourism Association of New Mexico
- Allison Southworth, Rural Economic Development thru Tourism, Program Coordinator, New Mexico State University
- Karen Wise, Angel Fire Chamber of Commerce
- Mark Byleth, Vice-President, Follow the Sun, Inc.
- Ross Anderson, Marketing Manager, Ski Apache Ski Area
- Dusty Huckabee, Director, Roswell Convention and Civic Center
- Judi Snow, Director, Rio Rancho Convention and Visitors Bureau
- Susan Unser, Co-founder, Unser Racing Museum
- Terry Harris, Information Systems of New Mexico
- Rebecca Plutino, General Manager, Best Western Rio Grande Inn
- Dwayne Virgint, Chief Operating Officer, Indian Pueblo Cultural Center Inc.
- Jerry Westenhaver, General Manager, Hyatt Regency Tamaya Resort & Spa
- Ted Pedro, Executive Director, American Indian Chamber of Commerce of New Mexico
- Glenda Duncan, Owner, Noisy Water Lodge
**Hospitality and Tourism (continued)**

- Tazbah Mc Cullah, Marketing Director, Indian Pueblo Cultural Center
- Gayle Martinez, Director, Taos Chamber of Commerce and Visitors Center
- Candy DeJoia, Ski Santa Fe
- Charles Meeks, Leisure Sales Manager, Inn of the Mountain Gods
- Nowka Leviner, Director, Macey Conference and Performing Arts Center, New Mexico Tech
- Anika Martinez, Marketing Solutions New Mexico
- Emily K. Howard, McKee Wallwork Cleveland
- Sharon H. Masters, Promotions-Membership Director, Alamogordo Chamber of Commerce
- Dora M. Dominguez, Project Director, Rural Economic Development through Tourism, New Mexico State University
- Jill Lane, Events Unlimited by Jill
- Deborah Dean, Tourism Director, City of Socorro
- Jerry Harrell, Old Mesilla Association
- Theresa McFerrin, Executive Director, Greater Albuquerque Inn Keepers Association

**Clovis Community Focus Group**

- Jan Bradburn, Director, Workforce Training Center, Clovis Community College
- Christy Casper, Recruitment and Retention Coordinator, Clovis Community College
- Landon Dalley, Student, Clovis High School, Clovis, New Mexico
- Kelly Gray, Public Services Librarian, Clovis Community College and Parent
- Kendra Hailey, Counselor, Marshall Junior High, Clovis, New Mexico
- Joyce Hodges, Counselor, Portales High School, Clovis, New Mexico
- Bonnie Miller, Director, Counseling, Testing and Advising, Clovis Community College
- Jean Morrow, Director of Extended Learning, Clovis Community College
- Rebecca Rowley, Interim President, Clovis Community College
- Michelle Schmidt, Dean Student Services, Clovis Community College and Parent
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Are You Ready?
Endnotes

1 The cluster definitions used in this guidebook are from the United States Department of Education Career Clusters initiative.


5 See, for example,
   - Teaming Up for School Improvement in New York City, Kathy Hughes and Lawrence Bailis, Columbia University Institute on Education and the Economy, New York, New York, 2001;
   - Inner-City Teacher Takes No Shortcuts to Success, Michelle Trudeau, All Things Considered, National Public Radio, April 26, 2005;
   - Reform in Maryland: Achievement Matters Most, Katharine M. Oliver, Maryland Department of Education, in Kazis 2005.

6 Executive Order 2004-004, State of New Mexico, Office of the Governor.
I want to be a __________ when I grow up.