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A division of the American Chemical Society

Workforce & Education

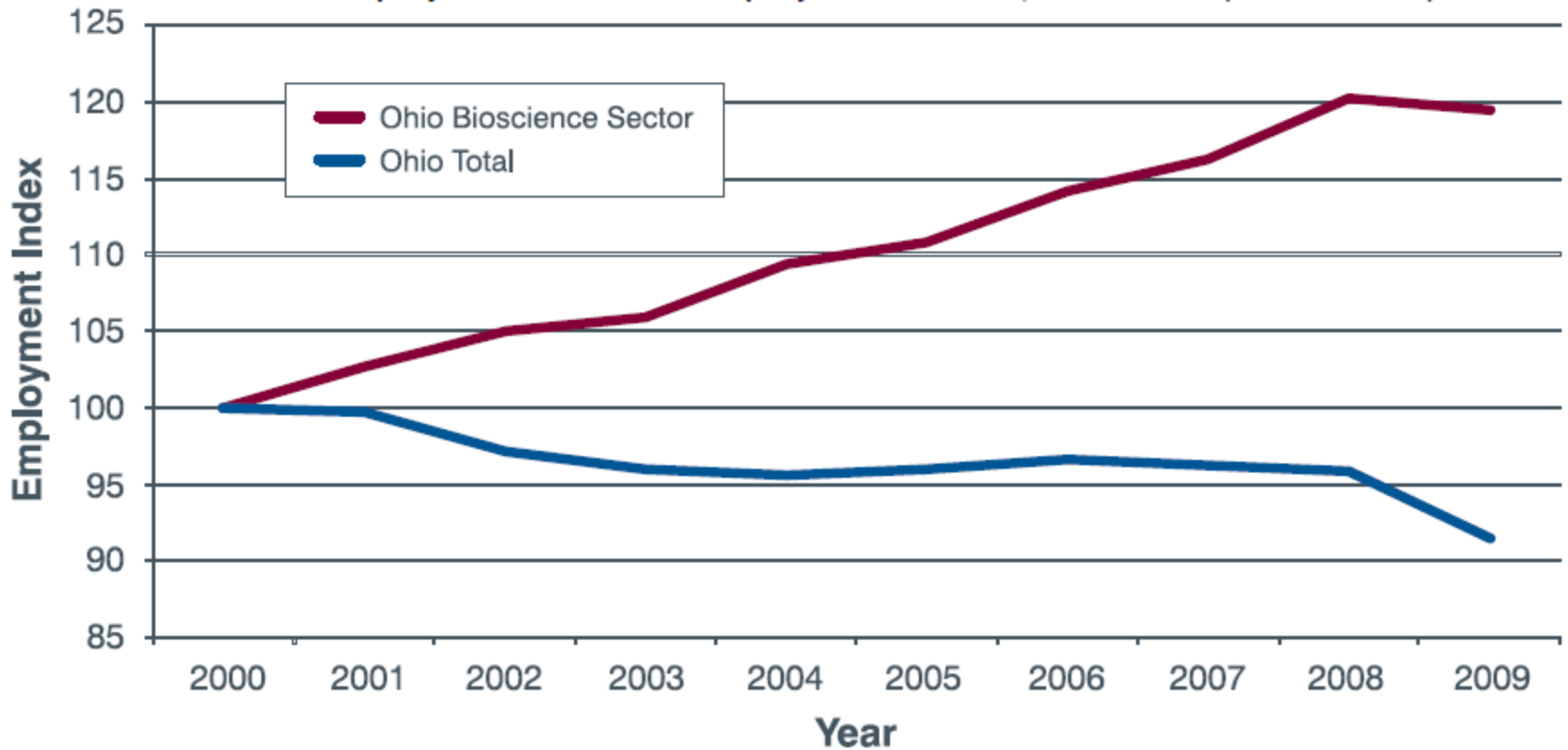
Generating Talent to Support Growth

Our Focus...Over the Years

- **How we started.....**
 - Driven by survey of industry needs
 - Better positioning of community colleges and career centers
 - Expand Career Technical programs at our high schools
- **Where we are.....**
 - Network of community colleges supporting industry growth
 - Career Tech high school programs continue to expand and new programs planned e.g. biomanufacturing technician
 - Great industry engagement
- **Where we're going.....**
 - All for college credit
 - Better align undergraduate and graduate programs with industry needs
 - Comprehensive integrated Bioscience workforce plan



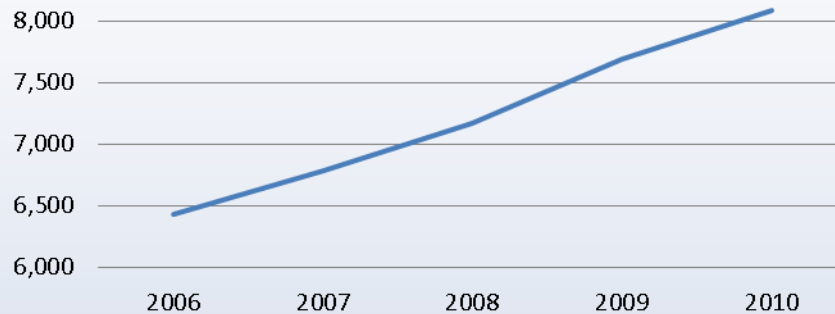
Bioscience Employment and Total Employment in Ohio, 2000-2009 (2000=100%)



Bioscience employment in Ohio has grown 2% on average each year since 2000. Conversely, total employment in all sectors of Ohio has declined 1% on average each year.

Ohio Bioscience Graduations

Ohio Bioscience Graduates 2006-2010



Graduation figures for selected bioscience related programs analyzed by BioOhio. Data from the National Center for Education Statistics, in cooperation with the Ohio Board of Regents.

Ohio Bioscience Graduations 2006-2010				
Year	Total Bioscience Graduates	4 Year Schools	2 Year Schools	Private For-Profit Schools
2006	6,433	5,669	512	252
2007	6,786	5,984	537	265
2008	7,172	6,287	472	413
2009	7,693	6,664	507	522
2010	8,088	6,857	610	621

Workforce Availability is Key

Continued Growth Requires.....

- Attracting and retaining a continuing flow of educated (Ph.D., MS, BS, AA) and technically proficient workers is essential to a state aspiring to enhance bioscience industry presence
- Key elements include the creation of two-year associate degree programs, and changes in curricula in colleges and universities to better reflect workforce needs

(Biotechnology Industry Organization)

But We're Lagging Behind

- Human capital in the U.S. and in the Midwest is lagging behind other developed nations, (2011, President of the Federal Reserve's Cleveland Branch)
- The nation and the region are falling behind in their “development of human capital,” forcing companies to locate elsewhere
- The U.S. has fallen from second in 1995 to 13th in 2008 among developed nations
- The number of adults with college degrees in Ohio ranks 38th among the 50 states

A Shortage of Talent

- Although economic conditions have improved and hiring rates have increased modestly since 2009, **companies are experiencing difficulties finding and recruiting employees with critical skills**
- There is clearly a **greater-than-normal mismatch between the skills employers seek and those that are available in the marketplace** (2011, Towers Watson Talent Survey)
- U.S. manufacturers are struggling to fill as many as 600,000 positions (2011, Deloitte and The Manufacturing Institute)
 - Two thirds of companies polled report that workforce shortages or skills deficiencies in production roles are having a significant impact on their ability to expand operations or improve productivity
 - These **unfilled jobs are mainly in the skilled production category** – positions such as machinists, operators, craft workers, distributors and technicians

www.biohioworkforce.org

Ohio Bioworkforce
Training Partnership

EXPLORE CAREERS | DEVELOP SKILLS | DISCOVER OHIO BIO | ABOUT US

GET THE SKILLS THAT MAKE YOUR CAREER
The training you need may be closer than you think.

Bioscience is Growing – and Wants You

From life-saving therapies and procedures, to healthier foods or cutting-edge research, you have undoubtedly enjoyed a better quality of life because of bioscience. Expected to grow 20% in the next decade, bioscience companies need to **train their workforce. That is where you come in.**

If you like science and math, working in teams to solve problems and improving people's lives – then bioscience may be a good fit for you. And while research scientists are an important part of the industry, it's not just about the white lab coat. There are workers who make the medical devices and drugs of tomorrow, and a sales force to market them. There are technicians to keep the production lines running, and transportation experts to get products to their destinations.

Here are more reasons to look into bioscience careers:

- **Pay is better.** Bioscience jobs pay 33% better on the average than typical manufacturing jobs.
- **The jobs are nearly recession-proof.** The industry has grown 7% during the last recession.
- **Your skills will be in demand.** The one thing standing between some bioscience organizations and their growth potential is finding qualified workers.

[View Careers](#)
[View Education & Training](#)

COORDINATED BY

There's a career technical center, community college or university within a 50 mile radius of every Ohio resident.

Poll
Which Bioscience Job Title Best Fits Your Skills and Expertise?

- LAB ASSISTANT
- MARKET RESEARCH SPECIALIST

Careers and jobs in Ohio's biomedical space!

Workforce & Education

Moderated by: BioOhio Sr. Director, Workforce & Education Bill Tacon

Community College & Adult Training: Just-in-Time Talent Solutions

- Mary Benedict, BioOhio
- Larry Miller, Columbus State Community College
- Michelle Hartley, WIL Research
- Ann Wilson, Roxane Labs (Boehringer Ingelheim)
- Jeff Marconet, Columbus State Community College

4-Year Universities: Expanding Minds and Career Opportunities

- Jack Bantle, Wright State University
- Stacia Edwards, Ohio Board of Regents
- Patrick Gardner, Battelle
- Joel Simon, CAEL





Bioworkforce Training Partnership Update

Mary Benedict
Program Manager

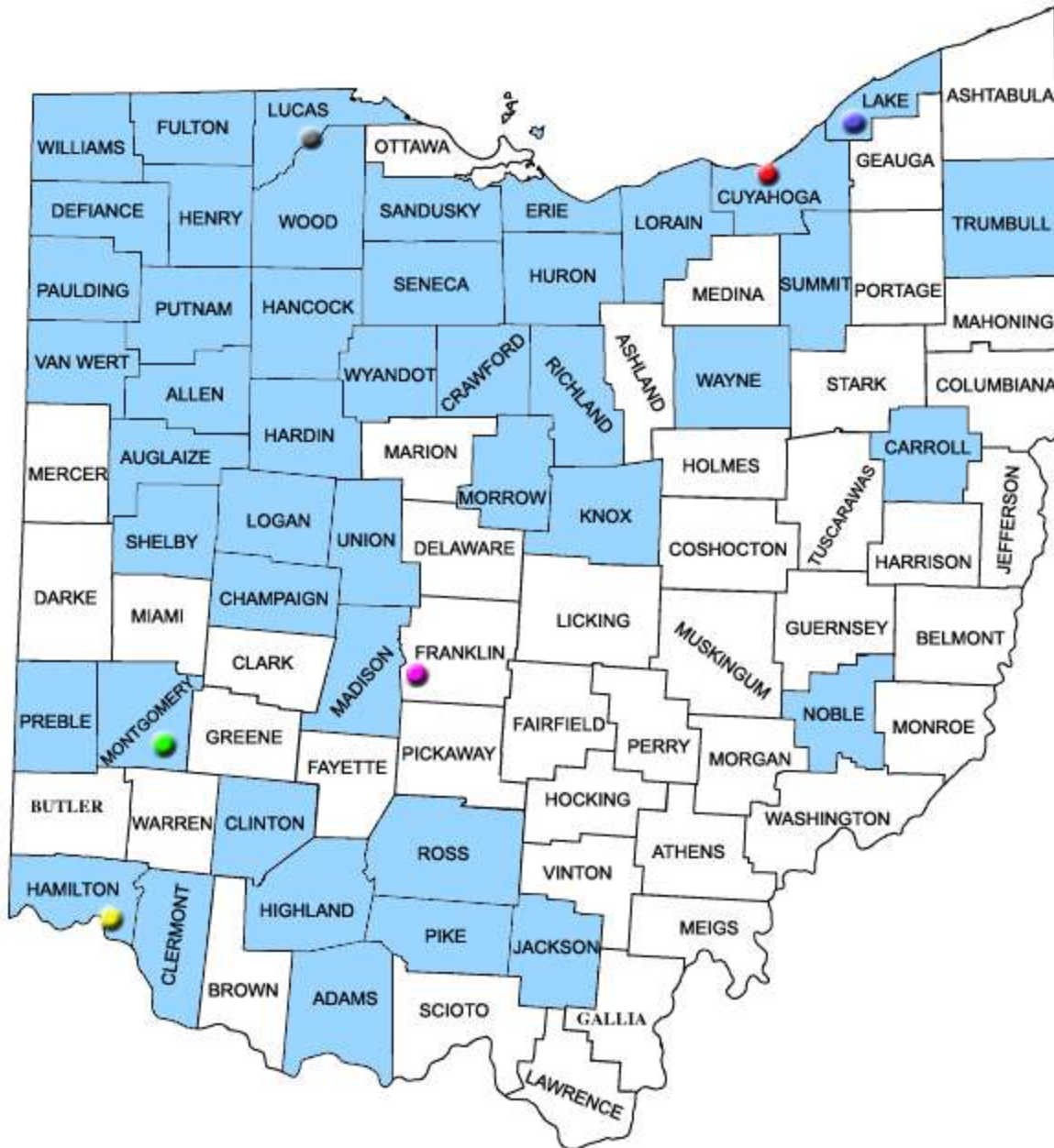
Ohio Bioworkforce Training Partnership

- **Grant Opportunity:**
 - Purpose is to transition dislocated, auto-restructuring impacted and underemployed workers to sustainable employment in bioscience careers
 - Funded through the US Department of Labor in conjunction with the American Recovery and Reinvestment Act (ARRA)
 - Six Community College Partners throughout the State
 - \$5 Million over the 3 years; grant will end February of 2013

Overview of the Program

- **Regional Partners**
 - Columbus State, Cuyahoga, Lakeland, Cincinnati, Owens and Sinclair Community Colleges
 - One Stop Partners
 - Advisory Committee
 - Other regional recruitment/training partners
- **Educational Offerings**
 - Certificate Programs
 - Short Term Training
 - Associate Degrees
- **Program Targets**
 - Dislocated Workers
 - Auto Restructuring-Impacted Workers (44 counties in Ohio)
 - Underemployed Workers
 - Incumbent Workers (under limited circumstances)
- **Employment Support**
 - Bioscience Career Fairs
 - Area bioscience companies serving in focus groups and advisory boards
 - Regional Partners network
 - BioOhio's state-wide network

Auto— Affected Counties and The Reach of Our Community College Training Partners



- Cincinnati State CC
- Columbus State CC
- Cuyahoga CC
- Lakeland CC
- Owens CC
- Sinclair CC

Update on Performance

- Grant Timeline
 - 55% of Grant Time Completed
 - 47% of Enrollment Completed
- New Employer Engagements
 - Our 6 community college partners have engaged over 20 new bioscience employer partners since the inception of the grant
- Programs Created and Supported
 - 3 Short Term Certificate Programs Created
 - 9 Programs Filled to Capacity
- Early Outcomes
 - 148 Graduates
 - 84 Placements

Workforce & Education

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Community College & Adult Training:

Just-in-Time Talent Solutions

- **Mary Benedict**, Project Manager, BioOhio
- **Larry Miller**, Bioscience Technology Instructor, Columbus State Community College
- **Michelle Hartley**, Human Resources Director, WIL Research
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Bioscience Technology

Workforce Training

Columbus State Community College



Bioscience Subsectors

Agricultural
Feedstock & Chemicals

- Agricultural processing
- Basic organic chemicals
- Ethyl alcohol mfg.
- Organic fiber mfg.
- Fertilizers
- Pesticides and other agricultural chemicals

Drugs &
Pharmaceuticals

- Medicinal & botanicals
- Pharmaceutical preparations
- Diagnostic substances
- Biological products

Medical Devices
& Equipment

- Laboratory apparatus & furniture
- Surgical, medical, dental, ophthalmic & analytical instruments & equipment
- Irradiation apparatus & electromedical equipment

Hospitals

- Specialty hospitals
- University medical research hospitals
- Clinical research institutions

Research, Testing, &
Medical Laboratories

- Biological research
- Commercial medical research
- Testing laboratories
- Medical laboratories & diagnostic imaging centers

Product-Oriented

Service -Oriented

Ohio Bioworkforce Training Partnership

- Grant Opportunity:
 - Purpose is to transition dislocated and unemployed (more than 12 months), auto-restructuring impacted and underemployed workers to sustainable employment in bioscience careers
 - Funded through the US Department of Labor in conjunction with the American Recovery and Reinvestment Act (ARRA)
 - Six Community College Partners throughout the State
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Ohio Bioworkforce Training Partnership - Region #1

- **Regional Partners**
 - Columbus State Community College
 - BIO Business Advisory Committee
 - Other regional recruitment/training partners
- **Educational Offering**
 - Bioscience Technology Basic Certificate – 19 credit hours
- **Program Targets**
 - Dislocated/Unemployed Workers
 - Auto Restructuring-Impacted Workers (44 counties in Ohio)
 - Underemployed Workers
- **Employment Support**
 - Bioscience Career Fair
 - Area bioscience companies reviewing graduate resumes
 - Program Counselor



CSCC Bioscience Technology Basic Certificate Program

- Program Enrollment

- Attend Overview Session
- Declare Interest in Pursuing Program
- Complete Program Application
- Take Job Fit Assessment
- Complete Drug Screen/Background Check
- Enroll at CSCC and receive Cougar ID
- Secure date to take COMPASS Assessment
- Meet with Program Counselor to get program placement details



CSCC Bioscience Technology Basic Certificate Program

Program Elements

- Dick Bickerstaff, Chair, runs the Bio Programming at CSCC
- After completing the **3 quarter program**, trainees will attend four to five days of job **pre-employment training** that will consist of: computer skills, resume development, behavioral interviewing and mock interviewing
- Participate in a graduation breakfast and program focus group (this is a pilot program and trainee feedback is crucial to ongoing program development)



Program Overview

Bioscience Technology Training in:

– Knowledge Areas

- FDA Good Manufacturing Practices/QbD
- Manufacturing Processes/Validation/QC

– Skills

- Process Controls/Aseptic Process Technology
- Documentation/SOPs
- Troubleshooting/Calibration

– 21st Century Workplace

– Other Related Competencies

- Technical Math and Writing
- Computer Literacy



CSCC Bioscience Technology Basic Certificate Program

Employment Efforts

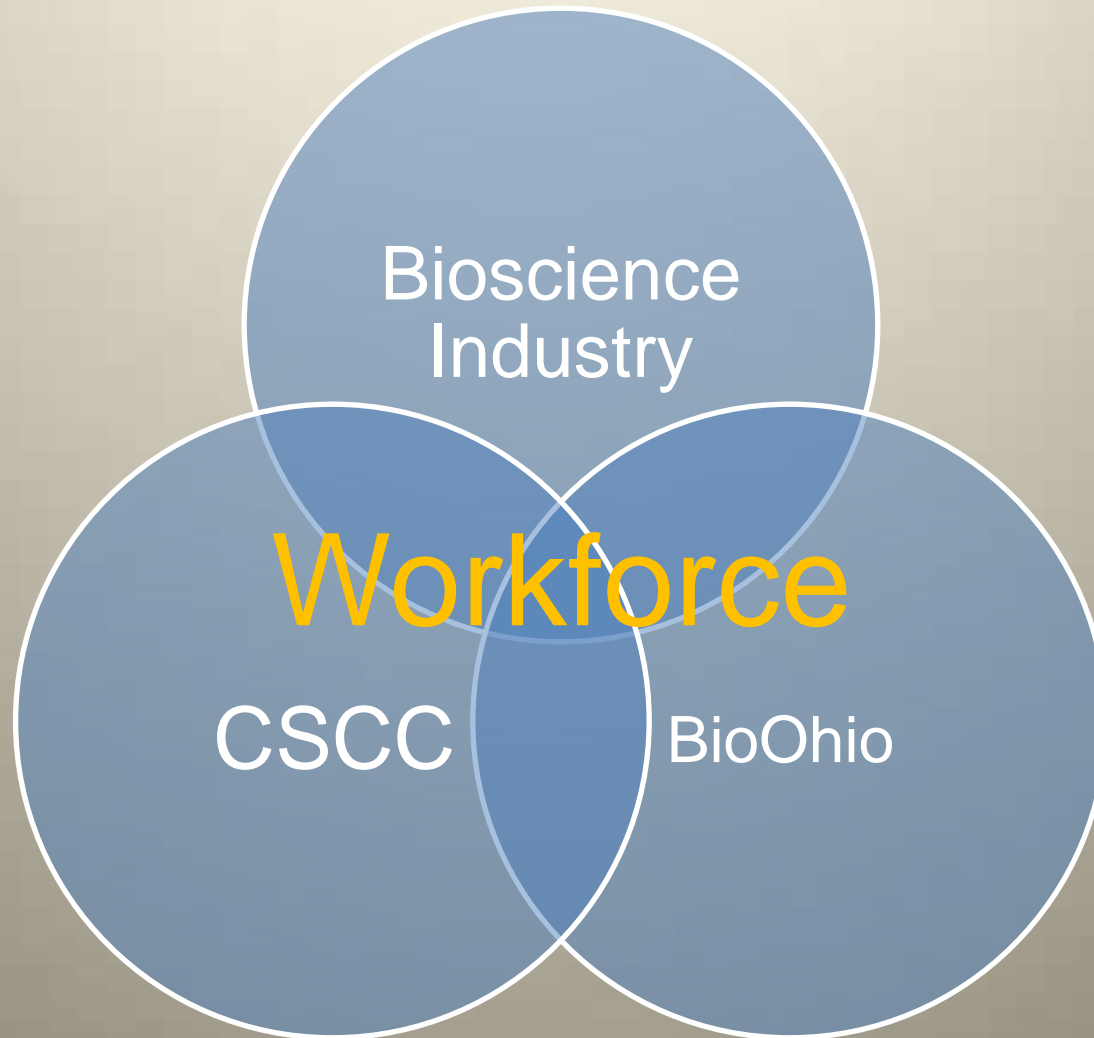
- Counselor sends graduate resumes to the Bio companies in Region #1
- Counselor sets up interface with employment agencies
- Counselor works with local employers to hold job fair in conjunction with BIO Ohio

DOL Tracking

- Counselor will follow-up quarterly with you on employment and wage issues until March, 2013
- Failure to report employment will trigger invoice for program costs



Partnering with Industry to Train the Bioscience Workforce for Today





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Community College & Adult Training:

Just-in-Time Talent Solutions

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Boehringer Ingelheim

BioOhio Annual Conference

October 27, 2011



AGENDA –

- ❑ Personal Background
- ❑ Company Background
- ❑ Company Involvement
- ❑ Potential Candidates

Personal Background

- **Credentials**

- ❖ University of Kentucky graduate
- ❖ Bachelors of Business Administration with concentration in Human Resources
- ❖ 25 + years of HR experience within various manufacturing industries such as: Automotive, Appliance, Electrical Systems, Glass, High Security Locking Mechanisms
- ❖ Past 14 years have been in the Pharmaceutical Industry

Current Role

- ❖ HR Generalist role, HR Business Partner.
- ❖ Scientific Affairs, Quality Affairs, Sales and Marketing Client Groups
- ❖ Organizational Design, Talent Management, Performance coaching, Change Management, Performance Management,

Our focus is on patients

For more than 125 years Boehringer Ingelheim has been committed to the research and development of innovative medicines that improve the lives of patients and their families



Our vision: Value Through Innovation



The objectives and beliefs of Boehringer Ingelheim can be summed up in a single phrase: Value through Innovation. This vision has helped us to build on our strengths and make the most of our distinctive character. In a competitive and fast-changing world, the value of products, services and companies is constantly changing. Real customer value today can only be created by constantly developing new solutions and doing what we already do better.

Company Background

- Founded in Ingelheim, Germany in 1885
- Largest privately owned pharmaceutical company in the world
- One of the five fastest growing companies in our industry
- Over 40,000 employees in 47 countries
- Established in US in 1971



Our history in Columbus, Ohio



1885: Originated in downtown Columbus as The Columbus Pharmacal Company.

1959: Purchased by Phillips of The Netherlands. The name was changed to Phillips Roxane.

1978: Purchased by Boehringer Ingelheim and the name was changed to Roxane Laboratories, Inc. Predominantly generic manufacturer until early 1990's.

Early 2000's: Identified as a strategic manufacturing and New product Launch site in the Boehringer Ingelheim network.

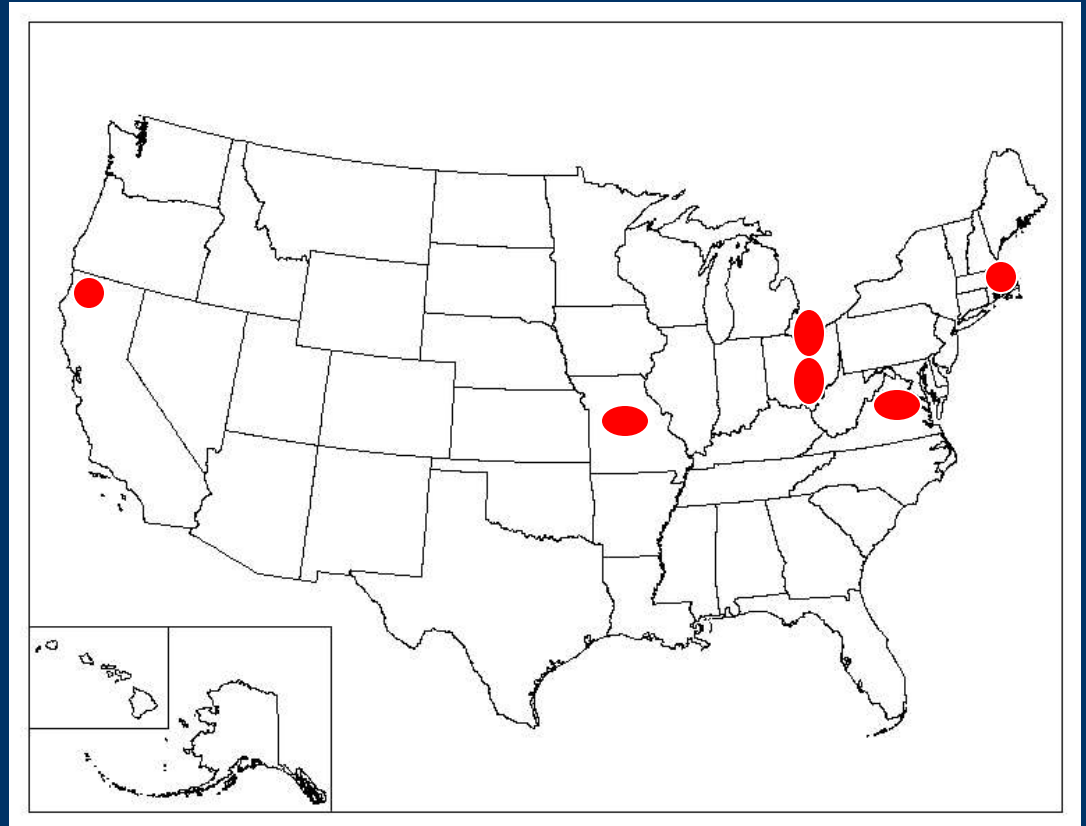
2005: Split into two legal entities: Boehringer Ingelheim Roxane, Inc. (BIRI) and Roxane Laboratories, Inc. (RLI)

Company Background

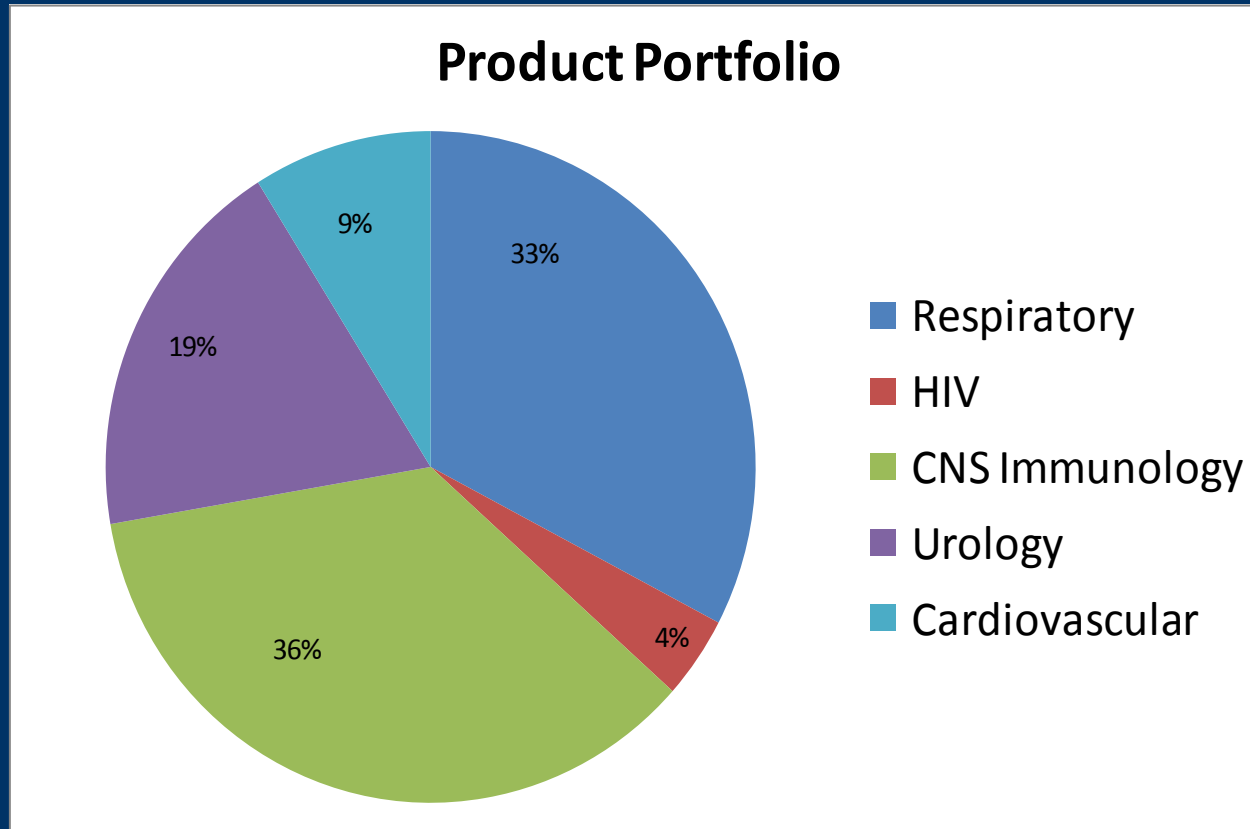
➤ Employees over 9,000 in US

➤ Six locations in US:

Petersburg, VA
St. Joseph, MO
Columbus, OH
Cleveland, OH
Ridgefield, CT
Fremont, CA



Manufacture, Package, & Distribute Pharmaceutical Products



Brand Products

Respiratory Products

Spiriva
Combivent
Atrovent

Central Nervous System Products

Mirapex

Urology Products

Flomax

Cardiology Products

Aggrenox
Micardis
Catapres TTS
Pradaxa

Virology Products

Aptivus
Viramune

MultiSource Products

Azathioprine

Prednisone

Fluticasone

Morphine
Sulfate

Megestrol
Acetate

Lithium

Company Involvement

Three Ways Support BioOhio:

- Participating in BioOhio Career Fairs
- Participated in BioOhio Industry Survey
- Agreed to Commitment Letter
 - Develop curriculum
 - Hire graduates

Potential Candidates

- High energy – fast paced environment
- High ethics and honesty
- High degree attention to detail
- Follow SOP/procedures step by step-
- Ability to work within very regimented system
- Good team dynamics
- Basic computers skills
- Basic math and working knowledge of metric system
- Understanding of measuring, mix, drying, compressing, and filling processes
- Mechanical and technical aptitude
- Experience setting up and operating manufacturing equipment



Questions

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WIL Research Company

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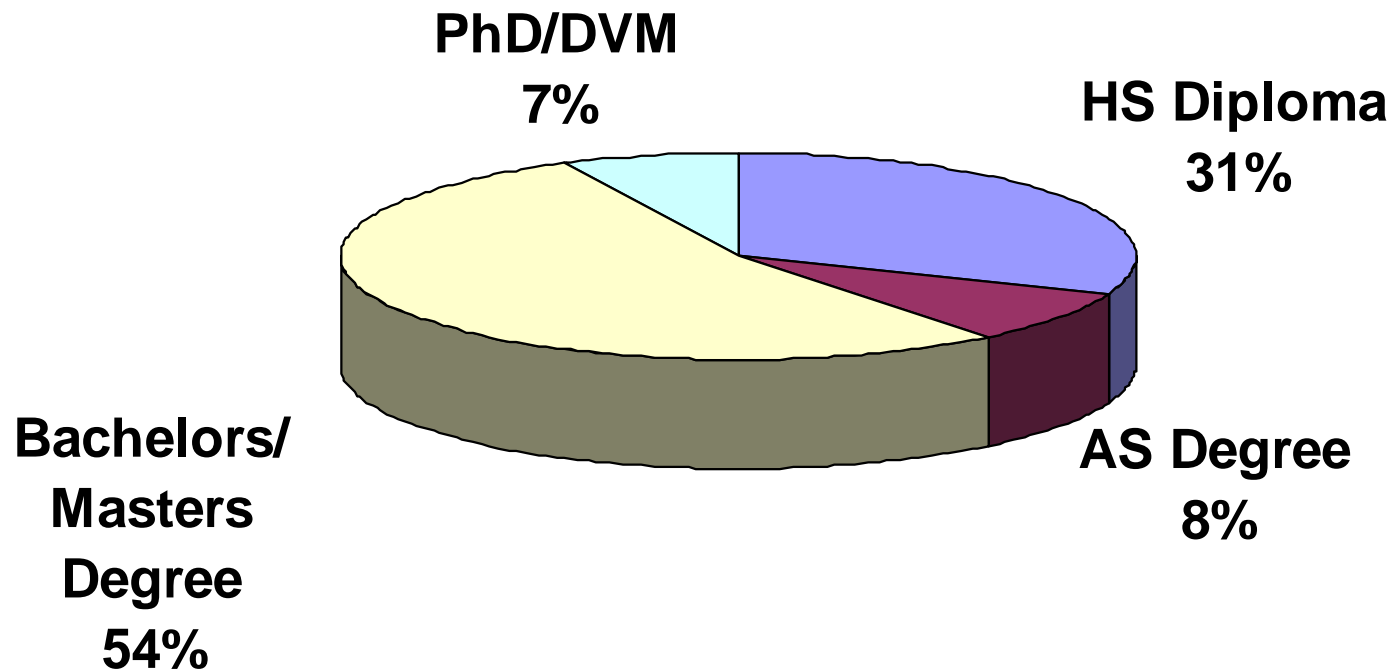
*Improving human health and protecting the environment through
scientific research services*



Capabilities and Services

- General Toxicology
 - Developmental and Reproductive Toxicology (DART)
 - Neurotoxicology
 - Juvenile Toxicology
 - Genetic Toxicology
 - Absorption/Distribution/Metabolism/Elimination (ADME)
 - Analytical Chemistry
 - Bioanalytical Chemistry
 - Toxicokinetics/Pharmacokinetics
 - Safety Pharmacology
 - Inhalation Toxicology
 - Infusion Toxicology
 - Pathology
 - Histology
 - Clinical Pathology
 - Surgical Models
 - Strategic Program Development
 - Regulatory Summary Document Preparation and Review (IND, CTD, BLA)
 - Commercial Archiving
-

Education of Staff (by highest level of attainment)



High Growth Occupations in Bioscience

www.dol.gov

Projected Growth (2006-2016)	Occupation
Much faster than average	Veterinary Technologists and Technicians
Much faster than average	Veterinarians
Much faster than average	Biomedical Engineers
Faster than average	Medical and Clinical Laboratory Technicians (MLT)
Faster than average	Medical Scientists, Except Epidemiologists
Faster than average	Biological Technicians
Faster than average	Veterinary Assistants and Laboratory Animal Caretakers
Faster than average	Medical Equipment Preparers
Faster than average	Biochemists and Biophysicists
Average	Sales Representatives, Wholesale and Manufacturing, Technical and Scientific Products
Average	Medical and Clinical Laboratory Technologists (MT)
Average	Chemists
Average	Industrial Engineering Technicians
Average	Natural Sciences Managers
Average	Statistical Assistants
Average	Chemical Engineers
Average	Agricultural and Food Science Technicians
Average	Microbiologists
Slower than average	Chemical Technicians

Educational Partnerships

Education	Institution	Program	Contact
BS	Ashland University	Major in Toxicology	Mason Posner, 419-289-5691 mposner@ashland.edu
AS	North Central State College	AS in Bioscience	Jim Hull, 419-755-4850 jhull@ncstatecollege.edu
Certificates	Ashland County West-Holmes Career Center	Bioscience Technology (Adult Education) Pharmacy Technician (Adult Education)	Melissa Carr, 419-289-3315 awhj_carr@tccsa.net
HS	Ashland County West-Holmes Career Center	Bioscience Tech Prep	Mike McDaniel 419-289-3315 awhj_mcdanie@tccsa.net

Careers at WIL Research

	Position	Pay
<i>HS/GED</i>	• Lab Assistants (HS Diploma/GED)	20-25K
	• Husbandry Technician (HS Diploma/GED)	20-25K
	• Histotechnician (HS Diploma & Cert.)	20-25K
<i>AS/BS</i>	• Associate Biologist (AS Degree)	28-35K
	• Formulations Specialist (AS/BS Degree)	28-45K
	• Biologists/Chemists (BS Degree)	30-50K
	• Quality Assurance Auditor (BS Degree)	30K-40K
	• Report Writer (BS/MS Degree)	30-50K
<i>Advanced Degree</i>	• Toxicologist (Ph.D.)	70-100K
	• Veterinarian (DVM)	70-90K
	• Pathologist (DVM, Ph.D., ACVP)	100+K

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4-Year Universities:

Expanding Minds and Career Opportunities

- **Jack Bantle**, Vice President, Research & Graduate Studies, Wright State University
- **Stacia Edwards**, Deputy Chancellor for Workforce Alignment, Ohio Board of Regents/University System of Ohio
- **Patrick Gardner**, Director of Staffing & Recruiting, Battelle
- **Joel Simon**, Associate V.P. for Public Sector Services, Council for Adult & Experiential Learning (CAEL)



Battelle Memorial Institute

Patrick Gardner
October 27, 2011

Battelle Timeline – Early Years



1648

Thomas Battelle lands in America as part of the Massachusetts Bay Colony

1776

Ebenezer Battelle served as Captain in the Continental Army

1860's

Rev. Gordon Battelle served as a Chaplain in the US Army during the Civil War

1860's - 1900's

Col. John Gordon Battelle was an early industrialist in the steel industry and helped build mining facilities and steel factories across the Midwest

1883 - 1923

Carried on his father's work in industry and died of appendectomy leaving a fortune of \$1M to establish the Battelle Memorial Metallurgical Institute

1925

Gordon's mother assumed responsibilities for Gordon's will and the businesses. She was the first female member of the Republican National Committee

1929

Battelle Memorial Institute opens for business

Battelle Timeline – Current Years



1930's

Steel and metallurgy are primary scientific focuses for institute, first government contract is awarded to scientific research



1940's

Battelle is a key science leader for the Manhattan Project; Battelle partners with Haloid (Xerox) to develop and commercialize the copy machine; Nuclear fuel for submarine technology



1950's

The Xerox copier is put into commerce and Battelle develops solutions to improve the cartridges



1960's

PNNL lab management established; Korea Institute of Technology; UPC, golf ball



1970's

Pringles; Desenex; Weed eater; Cruise control; Compact disc



2000's

9/11 Disaster; CBRNIAC; Anthrax scare; Dmil; DOE lab management; EPI pen 75% of business volume derived from government contracts



Present

Autonomous robotics; Blue Fin; Wastewater management; CO2 storage; Fuel cell; Toxicology; National Child Study; Armor systems

Gordon Battelle Will - Excerpts



“All of the residue of my estate...I give... to the trustees... of Battelle Memorial Institute, to be established I such manner as said trustees may designate.. For the purpose of education in connection with and the encouragement of creative and research work and the making of discoveries and inventions in connection with metallurgy of coal, iron, steel, zinc and their allied industries.”

“...whenever at the close of any calendar year the income from the business of said Battelle Memorial Institute shall result in profit of over twenty percent, on the principal of this legacy said Board of Trustees shall distribute, in the name of said Battelle Memorial Institute, the amount of such earnings to such charitable institutions, needy enterprises, or persons...as in their judgment will do the greatest good for humanity.”

Corporate Overview

- 935 staff located in Columbus and DC area
 - Human Resources
 - Legal
 - Government contracts
 - Purchasing
 - Finance & Accounting
 - Internal Audit
 - Computer Information Technology
 - ESH&Q
 - Facilities Management
 - Marketing & Communications
 - Laboratory Operations

Employee Value Proposition

Battelle's Employment Value Proposition

Explore below to see what's IN at Battelle.

What's IN it
for Me?

Intelligent
People

Inspiring
Work

Integrating
Work & Life

Inventing
Your Future

Investing in
Communities

Incentives

What's IN it
for Battelle?

Initiative

Intellect

Innovation

Integrity

Interaction

Income

Our mission is to be a major force in scientific and technology discoveries that benefit mankind.

Our
Core
Values

Workforce & Education

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Stick around for the Networking Reception

Featuring hors d'oeuvres, drinks, and great silent auction items benefitting the BioOhio Scholarship Fund





Annual Conference :: 2020 Vision