

EMPLOYABILITY SKILLS: Environmental Technology

SPONSORED BY ONONDAGA COMMUNITY COLLEGE • October 23, 2015

ENVIRONMENTAL TECHNOLOGY EMPLOYER PANEL

CATHERINE M. UNGER

Director of Operations
Onondaga County Health Department
Medical Examiner's Office

CHYENNE J. DASHNAN

Senior Engineer
Atlantic Testing Laboratories

DIANE V. CARLTON

Regional Director for Public Affairs &
Education
NYS Department of Environmental
Conservation

GUY SWENSON

Senior Technical Director
O'Brien & Gere

JAMES C. PLOCHOCKI

Chief Operator
Onondaga County Department of Water
Environmental Protection

JAMES M. JONES

Chief Operator
Onondaga County Department of Water
Environmental Protection

KELSEY J. MOODY

CEO
Ichor Therapeutics, Inc.

MARK E. BURGER

Executive Director
Onondaga County Water Conservation
District

STACEY MASSULIK DRAKE

Lab Manager/Microbiologist
SRC

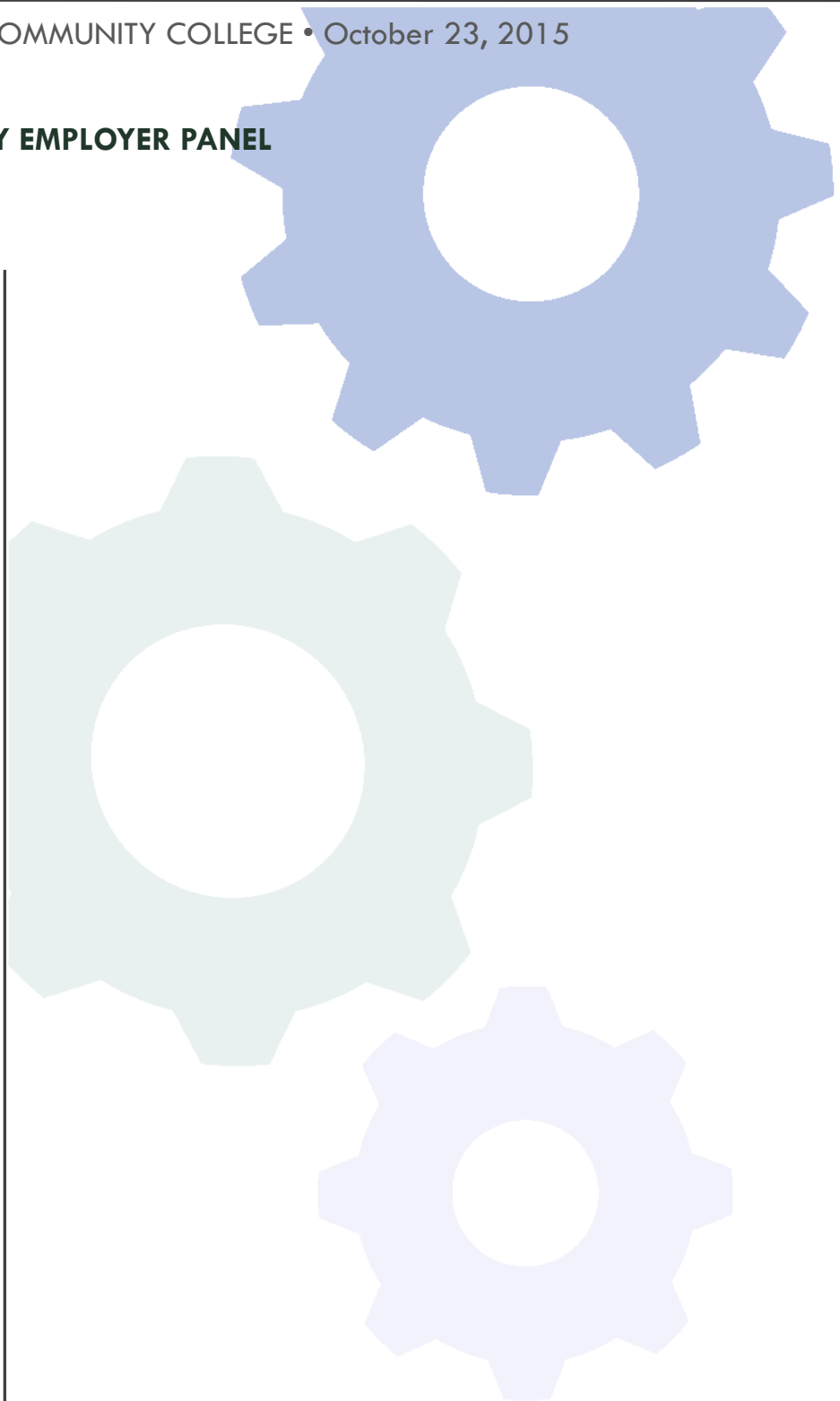
FACILITATORS

REBECCA FRACCHIA

Employer Engagement Manager
Economic & Workforce Development
Onondaga Community College

SHAUNNA JAGNEAUX

Project Director
Economic & Workforce Development
Onondaga Community College



Employability Skills Profile: Environmental Technology

Job Path:

The intent of these findings is to assist in understanding the employment needs and employability skills necessary for success within our local employer community as we consider realignment of our Environmental Technology curriculum to meet workforce needs.

Many job titles and paths exist within our diverse environmental community including the areas of biology, wastewater management, natural resource management, environmental support services, and engineering. For a complete list of the occupational areas discussed, associated job titles, and areas of greatest need, see pages 6-8.

Knowledge & Skills

- Biology
- Chemistry
 - ◇ Chemistry lab skills
 - ◇ General chemistry skills
 - ◇ Field analysis
 - ◇ Chemistry nomenclature
- Communication
- Correspond via email (lots of email communication)
- Correspond via email Understand when to pick up phone rather than use email - if more than two replies (email) get up and go there
- Computer hardware and software use
- Data Entry
 - ◇ Graph interpretation
 - ◇ Interpretation of statistical data
- Data management/documentation
- Field Skills
 - ◇ Field notebooks
- GIS Skills
- Instrumentation and technology
- Multitask
- Permitting/compliance
- Pollution prevention/waste minimization
- Quality Assurance/Quality Control (QA/QC)
- Safety
 - ◇ Health and safety routines
 - ◇ SDS sheets
 - ◇ Equipment operation
 - ◇ Driver safety
 - ◇ PPE
 - ◇ Material handling
 - ◇ Field safety
 - ◇ Bio hazard safety
- Sampling and monitoring
- Science, technology, engineering and math
- Sustainability
- Teamwork
- Troubleshooting/problem solving/critical thinking/research
- Workplace ethics

Future Trends & Concerns

- Young people can't put away cell phone
- Young workers think it is perfectly ok to Facebook while at work
- Intellectual property law changes impacting work
- More technical training, Less didactic
- Deficit of workforce (numbers, more 2 year type; technical skills)
- Baby boomers are retiring "One man deep is a problem"
- With retirement increasing, need to get everything written down
- More internship experience - "Need more internship experiences; when I look at candidates I look for experience"
- More field smarts - this is industry, not academia, "Huge gap between academia and industry, need more technical training/hands on"
- Multiple hats expectation
- Biomimicry - similar agents react in similar way
- Emerging pollutants of concern
- Healthy homes intervention (energy, lead, rodent/pest control, asthma triggers) - life safety and personal property issue
- Maintaining, developing, and rebuilding infrastructure
- Nanotechnology
- Succession planning
- Workforce demographics - need to understand a more diverse workforce
- Workforce mobility - work from home/remotely
- Zero waste
- Medical examiners have had to pull candidates from funeral services but need more biology - technical/hands-on training
- Students should be aware that forensic employment is competitive - may need to search out of area for jobs. Limited pool of positions.
- Market demand - while some positions may not require BS degree, we hire BS due to availability.
- New workers lacking resourceful behaviors
- New workers are ready to work, but only 9-5, "Who gave a little extra, stayed a little late (useful during yearly review)"
- Sense of entitlement
- Lack of ambition in new workers (particularly younger ones)
- Lack of troubleshooting skills, "Trouble shooting skills, outside the box and beyond the text"

Most Disappointing/Lacking in New Hires

Employers are seeing a need for improvement in certain key areas, and are disillusioned by skills and worker behaviors they expect to see in new employees but often struggle to find. Of particular note is that while the positions within the Environmental Tech field vary, the skills the panelists found most lacking reiterated cross industry, particularly communication skills and independence. When asked to describe what they found most lacking in new hires, panelists provided the following:

Technical Skills Lacking

- Budgeting/estimating skills
- Inability to communicate scientific concepts
- Lack of familiarity with peer reviewed literature (!)
- Low comfort with Excel and data processing
- No real technical method training
- Topographic Surveying (this is a basic "life skill" in the environmental field. At some companies (in particular SWCD), this skill set would set a prospective employee apart from other candidates) (!)
- Uncomfortable with solutions, dilutions, and concentrations

Initiative & Independence

- Lacking independent thinkers. If you have a problem, identify a solution.
- Desire to avoid peer pressure is lacking, i.e., if veteran employees waste time, new hires are reluctant to not follow suit
- Independent and team player
- Initiative/independent
- Lack of initiative; expecting too much hand holding
- Over neediness of supervisor; inability to make own decisions they should be able to make
- Proactive to resolve identified problems
- Self-starter
- Reluctance to take on new task (i.e., inability to independently work with new methods)
- Unwillingness to challenge or question supervisor's decision

Proactive

- Lack of proactivity
- Lack of ambition (in general, and to learn the job quicker)
- Lack of desire to advance

Time Management

- Inability to multitask and prioritize deadlines
- Time management is lacking

Communication (Written and verbal)

- Communication skills (with management and team, empathy, respect, relationship management)
- Writing skills
- Ability to write clearly and present thoughts and conclusions
- Overuse of email; don't want to "talk" to other staff when such is more appropriate
- Marketing of the organization - daily
- Public speaking ability (able to participate in interview with newspaper, TV or radio)

Problem Solving/Troubleshooting

- Inability to understand "big picture"
- Lack of common sense
- Lack of troubleshooting skills
- Research/resourcefulness
- Unwillingness to look "outside of the box" for solutions
- Lack of attention to detail

Practical Ability

- Little ability to apply skills to broader situations
- Little practical experience (internships, research experience, etc.)

Professional Attitude/Entitlement

- Attitude that a job is 9-5 and does not require extra effort or self-motivated training
- Lack of good work ethic (team playing, attendance)
- Not a team player
- Limited commitment and flexibility
- Professionalism
- Sense of entitlement
- Unrealistic expectations of placement and advancement (timelines)

Phone Use/Abuse

- Inability to turn off/put away phone, interferes with work
- Playing on smart phones

Workplace Expectations

- Continuous safety training is expected
- Expect to understand and be compatible with corporate culture; subscribe to broader vision "Buy into a vision" but communicate discrepancies to help reach goals
- Troubleshooting solutions is expected, "Bring the problem, and at least 1 solution, if not at least 3"
- "Stay in your lane"
- "We don't have slow times"
- "Drink the Kool-Aid"

Acronyms

- CAD: Computer Aided Design
- GIS: Geographic Information System
- CAA: Clean Air Act
- SOP: Standard Operating Procedure

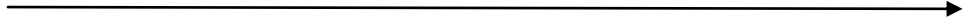
Traits & Behaviors

- Detail-oriented
- Independent in thought
- Be a person with integrity
- Remain positive
- Ability to communicate thoughts clearly
- Don't let client down
- Keep customer happy
- Resourceful
- Personal reflection to make self better and continue to grow

Employability Skills Chart: Environmental Technology

Categories

Behaviors



A Take Professional Responsibility	A1 Comply with company policy 3 1 3	A2 Protect company assets 2 3	A3 Report to work as scheduled 6	A4 Meet goals, objectives & standards 2 5 2	A5 Keep private life from affecting work (e.g., cell phone, drama) 4 3 4	A6 Take accountability for his/her choices
	A7 Adapt to the situation 1 1 3	A8 Complete tasks without supervision 1 1	A9 Wear appropriate attire 1	A10 Initiate new work tasks 4		
B Make Good Decisions	B1 Recognize need for more information 2 1	B2 Redirect customer when needed 3	B3 Prioritize work based on business needs 4	B4 Communicate when exceptions to policy are needed 1	B5 Correctly use authority without exceeding limit 1	B6 Adjust own work schedule to meet business need 1 2
	B7 Be a team player 7 3	B8 Identify tech/personnel/management/resource problems 3	B9 Brainstorm solutions to problems 4	B10 Evaluate own solutions 4	B11 Exercise appropriate level of autonomy 4	
C Demonstrate Workplace Safety	C1 Follow safety procedures 4 1 4	C2 Be mentally alert 1	C3 Be aware of surroundings 1	C4 Demonstrate knowledge of equipment 1	C5 Maintain work equipment 1	C6 Report safety problems
	C7 Be accountable for your own safety 1 1					
D Treat Every "Customer" as a Priority	D1 Interact politely and professionally (workmanship) 2 1	D2 Remain positive with negative customers 1 1	D3 Try to help hostile customers earnestly 1 1	D4 Pursue customer concerns immediately 2	D5 Demonstrate willingness to compromise 4	D6 Resolve competing customer needs appropriately
	D7 Follow through on customer commitments 1 1	D8 Listen actively to customer comments and requests 1 1	D9 Determine customer needs 1 1			

Categories Behaviors →

E Demonstrate Personal Integrity	E1 Respond appropriately to situations of right and wrong	E2 Address those who push ethical limits	E3 Protect confidential information	E4 Follow the golden rule		
	2	1	1	4 2		
F Pursue Professional Development	F1 Stand up for self where appropriate	F2 Accept criticism without defensiveness	F3 Learn from critiques	F4 Learn new skills as appropriated	F5 Show interest in learning more	F6 Demonstrate desire for job improved performance
	2	3 4 4	2 1	1 2 2	5 2 4	3 1
G Demonstrate Time Management Skills	G1 Use time efficiently & appropriately	G2 Demonstrate ability to plan ahead	G3 Proactively use slow times to benefit company	G4 Meet work schedules <small>(e.g., on-time arriving, returning from breaks, lunch)</small>		
	1	1 5	1 2 2	2 1	2 2	
H Use Proper Social Skills at Work	H1 Speak openly and honestly with co-workers	H2 Respect other people's time	H3 Work well with others	H4 Choose when to engage in social conversations appropriately	H5 Avoid inappropriate behavior <small>(voice/body image)</small>	
	1	3	1 2	2 1 2	2	1 2
I Commit to Quality	I1 Care about improving company operations	I2 Initiate action to resolve operating problems/ inefficiencies	I3 Address task-related problems constructively to subordinates	I4 Care about quality work	I5 Assist peers proactively	I6 Participate in mandatory OJT
	1	2 2 2	1	1	3 5 3	1

Legend

- 9Critical Category
- 9Critical Behavior
- 9Training Most Needed by New Workers
- 9Training Most Needed by Veteran Workers

Note: Numbers represent total votes from 9 panelists.

Environmental Technology Potential Career Path

Occupational Area	Biology	Industrial	Wastewater Management	Natural Resources Management	
4++ years					
4+ years	Biosafety Officer				
4 years	<ul style="list-style-type: none"> • Forensic Autopsy Technician • Forensic Investigator • Biologist (Fisheries) • Biologist (Ecology) • Biologist • Associate Scientist • Scientist 	Industrial Process Engineer	<ul style="list-style-type: none"> • Field Technician (advanced) • Lab Technician • Wastewater Process Engineer • Sanitary Engineer • Stormwater Engineer 	<ul style="list-style-type: none"> • Implementer • Biologist (Wildlife) • Farm Conservation Planner • Forester • Surveyor • Citizen Participation Specialist 	
2 years	Associate Technician		<ul style="list-style-type: none"> • Maintenance Mechanic • Field Technician • Wastewater Operator • Stormwater Site Inspector 	<ul style="list-style-type: none"> • Certified Pesticide Applicator • Wildlife Technician • Fisheries Technician • Forestry Technician 	
1-2 years	Forensic Assistant		Maintenance Worker	<ul style="list-style-type: none"> • Environmental Program Aid • Clerical Assistant 	
0 years	Lab Assistant		Maintenance Laborer		

	Law Enforcement	Water Supply & Treatment	Environmental Support Services	Environmental Site Management
			Geologist	
			<ul style="list-style-type: none"> • Lab Coordinator • Scientist 	
	<ul style="list-style-type: none"> • Environmental Conservation Officer • Forest Ranger 	Water Engineer	<ul style="list-style-type: none"> • Environmental Analyst • Support Specialist 	
			<ul style="list-style-type: none"> • Marketing Writer (No ENV skills) • Field Technician • Air/Filed Technician • GIS Expert • Senior Technician 	
				Operations Specialist

Please note: The categories and job titles listed are representative of environmental occupations which typically require some level of technical knowledge and four years or less of education; required experience varies per company and position. Titles noted in bold indicate greater need by employers. It is not always necessary for a person to move through each of these phases of advancement to reach a particular position level, and there is some transferability and cross over potential between occupational areas.

Environmental Technology Potential Career Path (continued)

Occupational Area	Environmental Education	Engineering	Chemistry	Management
4++ years				
4+ years				
4 years	Environmental Educator	<ul style="list-style-type: none"> • Environmental Geologist • Project Engineer • Environmental Remediation Engineer • Spills Engineer • Environmental Program Specialist • Air Engineer 	<ul style="list-style-type: none"> • Forensic Chemist (specifically LCMS experience) • Sanitary Chemist 	Project Manager
2 years		CAD Drafter	Lab Tech/Health (Toxicology, Chemistry, Instrument)	
1-2 years				
0 years				

Reasons for Retaining Underperforming Employees

While not all employers indicated they were willing to retain underperforming employees, those that did listed the following behaviors as reasons for giving these employees some more time:

- Attitude (positive and cooperative)
- Willingness to learn
- Team player
- Took initiative
- Had potential with other areas that could be applied down the road
- Past performance (employee previously earned reputation of being a good worker, gave them time to regroup)
- Employee demonstrated knowledge, skills, abilities and willingness to pull themselves out of their slump - they had motivation.

Panelists expressed other reasons why underperforming employees have been retained, not based on redeeming attributes of the employee, but rather reasons preventing them from being able to dismiss the employee:

- Union contractual protections
- 1-year probation good performance façade
- Political reasons
- The employee has/had a "connection"
- Short-staffed/ Lack of available staff to fill in without working below level/Lack of qualified replacements
- Lack of action on supervisor's part to correct inappropriate behavior or actions before they were made permanent

Reasons for Termination

There could be multiple layers and/or reasons why a person would be let go from a position in the Environmental Technology field, the panelists cited the following as the most common causes for termination of employment:

- Bad fit for company culture, resistant to changing or improving, poor communication, poor execution of tasks or maintenance of safe workplace environment
- Breach confidentiality
- Can't follow instructions
- Can't get along/work with others
- Disrespectful to leadership, coworkers, and/or clients
- Drug addiction (and alcohol)
- DWI (on own time) which prevented person from driving
- Ethical violations
- Funding limitations
- Incompetent/lack quality, timeliness
- Irresponsibility or actions that could compromise the company
- Job layoffs - "low man on totem pole"
- Lack of work
- Not meeting daily requirements of job *
- Only willing to do minimum required
- Overuse of internet
- Personal grudges
- Poor quality services
- Power monger
- Repeatedly not meeting expectations despite feedback, coaching and mentoring
- Stealing
- Tardy
- Unreliable
- Violation of work rules regarding attendance, drug/alcohol use, insubordination

Onondaga Community College wishes to extend a special “thank you” to the following businesses for donating their expertise to the development of this employability profile for Environmental Technology and to all of the managers and supervisors who served on this employer panel. Our program will be better because of your direction and guidance.



NYS Department of Environmental Conservation



Onondaga County Health Department



This employability profile was validated by local employers based upon the *Chart of Employability Skills* sponsored by the Alaska Processing Industries Careers Consortium, 2003, the *Employability Skills: Manufacturing* developed at Raritan Valley Community College, and the workplace behavior categories determined by Learning Resources Inc. OCC's Workforce Development Programs have been funded under a United States Department of Labor TAACCCT Grant whose purpose is to facilitate greater employment by improving education. For more information visit: <http://bit.ly/occ-taacct-iv>