



Laboratory Worker

Bio-economy Skills Profile Summary

Laboratory Workers are employed in various bio-economy laboratories including research, quality control and quality assurance laboratories. They perform “on-the-bench” tasks and laboratory procedures under the supervision of laboratory technologists, laboratory researchers, research scientists and other senior staff. They assist and support laboratory processes in compliance with good laboratory and manufacturing practices, and may participate in the development of structures and processes related to biotechnology.

Learn more about the role of Laboratory Worker by downloading the full skills profile for free at www.biotalent.ca/profiles.



Building skills for Canada's bio-economy

Laboratory Worker



BioTalent Canada's Bio-economy Skills Profiles

Biotechnology's fusion of science and business creates unique requirements for jobs in the sector. Candidates often need skills suited both to the laboratory and the boardroom. As a result, occupational descriptions from other sources or sectors don't always fit the bio-economy exactly. That's why, in partnership with industry stakeholders, BioTalent Canada has developed skills profiles specific to the bio-economy—a project that will continue with the ongoing addition of other functions over time.

Each profile includes a definition of the occupation, a list of competencies and associated tasks, a summary situational analysis, language benchmarks, and essential skills.

Who can use these profiles?

Easy to use and interpret, our *Bio-economy Skills Profiles* were created to meet the needs of a wide range of audiences. Here's how you might use them if you're an:

Employer: Develop job descriptions, performance evaluation criteria, professional development programs, succession plans, team building initiatives and recruitment plans.

Job seeker: Identify your professional development needs, tailor your resume for a specific position, prepare for interviews and interpret job descriptions.

Educator: Build industry-oriented curricula to help produce job-ready graduates.

Student: Grow your understanding of employers' expectations and choose the right educational programs to equip yourself with the skills for success.

Validated by industry

BioTalent Canada created its *Bio-economy Skills Profiles* in consultation with industry to accurately capture the needs of biotechnology companies and produce truly practical, relevant resources. These profiles summarize the high-level skills required for each occupational profile and itemize in detail the common tasks associated with each function. Because the profiles are comprehensive, not every skill may be required for a single position: instead, the profiles present the full sets of skills that could be expected of a person in a given role within companies at various stages of development.

Information you can trust

BioTalent Canada is the country's source for reliable, objective and accurate information on skills development and human resources in the bio-economy. Our aim as Canada's biotechnology sector council is to deliver the human resources tools, information and skills development resources industry needs to ensure an adequate supply of job-ready people.

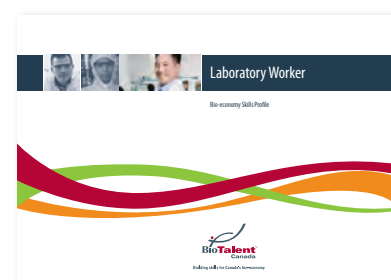
Understanding the bio-economy

Canada's bio-economy is engaged in the research, development, commercialization and manufacturing of biotechnology products. The bio-economy is constantly expanding as new technologies and techniques are applied to an ever-broader range of industries and sectors including:

| | |
|-----------------|-------------------|
| Agriculture | Genomics |
| Aquaculture | Human Health |
| Bioenergy | Industrial |
| Bioinformatics | Life Sciences |
| Bioproducts | Medical Devices |
| Biosciences | Nanotechnology |
| Environment | Natural Resources |
| Food Processing | Nutraceuticals |
| Forestry | Pharmaceuticals |

Get started today

Even before you download the full Laboratory Worker Skills Profile, get a sense of the information it contains and how you might use it in your work. Attached here is a quick-reference checklist that summarizes the core skills required for the position and the common tasks associated.



Go to www.biotalent.ca/profiles and download this and other complete skills profiles.

Bio-economy Competency Profile Checklist

Laboratory Workers may hold Bachelor's degrees in scientific areas including chemistry and biology, or Grade 12 academic diplomas, backed by practical laboratory experience.

A Laboratory Worker:

A. Conducts professional practice according to established protocols, safety guidelines and existing legislation

- 1. Applies the principles of standard precautions
- 2. Uses personal protective equipment
- 3. Applies appropriate laboratory hygiene and infection control practices
- 4. Minimizes possible dangers from biological samples, laboratory supplies, radioactive material and equipment
- 5. Utilizes laboratory safety devices in a correct manner
- 6. Labels, dates, handles, stores, and disposes of chemicals, dyes, reagents and solutions according to WHMIS and existing legislation
- 7. Handles and disposes of "sharps" according to institutional policy
- 8. Stores, handles, transports and disposes of biological, chemical, radioactive materials and controlled substances according to existing legislation



- 9. Selects and utilizes the appropriate method for items to be disinfected/sterilized
- 10. Minimizes the potential hazards related to disinfection/sterilization methods
- 11. Seeks appropriate first-aid treatment by mobilizing emergency response
- 12. Applies spill containment and clean up procedures for infectious materials and dangerous chemicals according to institutional policy
- 13. Responds appropriately to fire emergencies
- 14. Reports incidents related to safety and personal injury in a timely manner to management

B. Verifies relevant data and ensures that appropriate samples are procured according to established protocols

- 1. Records relevant information on appropriate requisition forms
- 2. Procures and labels samples according to specific requirements, in a variety of conditions
- 3. Observes established protocols for procurement of samples with legal implications
- 4. Collects, labels and delivers samples in a safe and timely manner taking into account priority and sample stability
- 5. Verifies sample suitability including adequate amount/volume and integrity
- 6. Validates documentation to ensure that it corresponds with the sample
- 7. Registers samples into laboratory information system
- 8. Complies with existing guidelines for sample retention, storage and disposal
- 9. Takes corrective action when errors in sample procurement are identified

C. Analyzes samples and validates results using established protocols

- 1. Prepares samples for analysis
- 2. Ensures appropriate storage of samples
- 3. Prioritizes analyses according to sample stability
- 4. Maximizes efficient use of resources
- 5. Prepares and uses calibrators, standards, quality control materials
- 6. Organizes samples from worklists, log books and computerized work documents
- 7. Performs analyses within acceptable limits of error
- 8. Verifies test results using calibration and quality control data
- 9. Recognizes possible sample/analytical deficiencies and takes appropriate action
- 10. Identifies implausible results and takes appropriate action
- 11. Verifies that sample identification is traceable throughout the analysis
- 12. Verifies that all ordered analyses have been completed

D. Understands the principles and performs proper analytical techniques on samples that originate from a variety of sources

- 1. Collects samples
- 2. Processes samples
- 3. Stores samples

- 4. Applies the principles of working with hazardous chemical or biological material regarding reagent preparation, storage and disposal (WHMIS)
- 5. Weighs out chemicals on sensitive weighing devices
- 6. Uses appropriate personal protective equipment
- 7. Conducts volume measurements on liquids using micropipetors, pipettes, graduated cylinders
- 8. Calculates concentrations, areas, dilutions and other measurements in varying units of measure
- 9. Uses laboratory materials in a cost effective manner



- 10. Maintains and calibrates laboratory equipment and initiates repair procedures when necessary
- 11. Applies principles of working with hazardous materials when cleaning and disinfecting equipment
- 12. Works with radioactive materials
- 13. Performs microscopy
- 14. Prevents cross-contamination and/or applies aseptic technique
- 15. Reports all equipment malfunctions
- 16. Applies tissue culture techniques related to field of work outlined by supervisor
- 17. Performs assays related to field of work outlined by supervisor
- 18. Performs chemical tests related to field of work outlined by supervisor
- 19. Performs molecular biology techniques related to field of work outlined by supervisor
- 20. Performs microbiology techniques related to field of work outlined by supervisor
- 21. Works with mammals related to field of work outlined by supervisor
- 22. Applies good record keeping skills
- 23. Applies computer skills in the processing and presentation of data
- 24. Is knowledgeable of appropriate computer software

- 25. Maintains laboratory supplies and monitors inventories
- 26. Practices Good Laboratory Practices (GLP)
- 27. Maintains a clean and well organized work environment
- 28. Follows procedural documentation

E. Interprets, communicates and documents confidential data, using scientific knowledge as the basis

- 1. Evaluates analytical results on the basis of:
 - reference values
 - critical values
 - method limitations
 - delta checks
 - recognition of implausible results
 - relationship to clinical conditions
 - relationship to other laboratory findings
- 2. Releases results of laboratory analyses that meet internal quality control criteria in a timely and efficient manner
- 3. Recognizes when results of analyses are outside expected findings and responds appropriately
- 4. Investigates unusual findings prior to reporting
- 5. Recognizes critical values and responds appropriately
- 6. Communicates information regarding laboratory analyses in an appropriate manner
- 7. Ensures that laboratory results are accurately documented and retained in accordance with existing legislation
- 8. Uses a computer for data entry, storage, retrieval and calculations

F. Practices and promotes the principles of quality management and the efficient utilization of resources

- 1. Follows established protocols as defined in policy and procedure manuals
- 2. Determines if there is a need for calibration of instruments with electronic and/or manual methods
- 3. Performs and assesses quality control (internal and external)
- 4. Utilizes statistics and indicators to monitor the acceptability of results based on established quality control ranges
- 5. Maintains appropriate documentation
- 6. Utilizes responsible practices which contribute to the cost-effective use of resources

- 7. Follows established preventive maintenance programs and maintains instrument logs
- 8. Recognizes malfunctions in equipment/instruments and initiates appropriate corrective action
- 9. Addresses equipment/instrument malfunction according to established protocol
- 10. Applies continuous quality improvement techniques and risk management processes to ensure quality laboratory services

G. Applies critical thinking skills to constructively solve problems

- 1. Demonstrates an open, inquiring mind and self-directed learning processes in resolving analytical, workplace and career challenges
- 2. Demonstrates the ability to adapt to rapidly changing situations
- 3. Recognizes that change initiated in one area will impact on other areas

H. Addresses workplace challenges by applying skills in change management, time management, materials management and information management

- 1. Contributes to, responds to, and effectively works in a changing environment
- 2. Demonstrates effective time management
- 3. Participates in maintaining and controlling inventory and purchase of supplies



- 4. May participate in shipping and receiving of dangerous goods and controlled substances
- 5. Plans work schedule according to tasks and availability of equipment
- 6. Uses computers, laboratory information systems and related technology in sample tracking and data management

I. Projects a professional image and interacts in a competent manner, using effective listening, verbal and written communication in dealings with others

- 1. Practices effective communication with others while maintaining a professional attitude
- 2. Seeks out and listens to others



- 3. Uses effective verbal communication strategies
- 4. Uses technology appropriately to facilitate communication
- 5. Writes clearly and concisely in English
- 6. Uses effective written communication strategies
- 7. Identifies barriers to effective communication
- 8. Recognizes forms of non-verbal communication
- 9. Works effectively with team members and others

J. Meets the legal and ethical requirements of practice

- 1. Maintains confidentiality
- 2. Seeks help and guidance when asked to perform beyond competence
- 3. Exercises a judicious approach to the right to refuse to participate in potentially dangerous situations
- 4. Takes responsibility and is accountable for his/her actions
- 5. Identifies learning needs and participates in continuing education and skills development
- 6. Keeps abreast of laboratory techniques and research and shares new knowledge with colleagues
- 7. Promotes a professional image by maintaining high standards in practice
- 8. Recognizes how ethical issues affect the Laboratory Worker