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## Heritage College Guidelines #6 Relating to Biosafety

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**Subject:** Guidelines Relating to Biosafety for the Biology Laboratory and Preparation Room

**Administrator:** Associate Academic Dean

**Issuing Service:** Academic Services and Building Services

**Coming into Force:** March 30, 2010

**Revised:**

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### **Background**

As of September 21, 2009, anyone responsible for activities involving human pathogens or toxins must register under the Human Pathogens and Toxins Act (HPTA), Bill C-11. Bill C-11 was designed to protect the health and safety of the public against the risks posed by human pathogens and toxins, while allowing science and research to progress.

Heritage College is a teaching facility only, and has one Biology Laboratory. Risk Group II materials are utilized in the laboratory, requiring Containment Level II Biosafety measures, physical containment equipment and operational practices.

### **Purpose**

The purpose of the Biosafety Guidelines at Heritage College is to articulate the objective of providing a safe, healthy and secure work and learning environment while handling biohazardous materials and to delineate responsibility for achieving it.

The Biosafety Guidelines establish a framework of responsibility to manage biohazardous materials while undertaking its teaching mission. All possible preventive measures are to be taken to eliminate accidental injury, occupational risk and disease.

### **Application**

These guidelines apply to all persons (including Heritage College employees, students, service providers, contract employees or any other persons) involved with the acquisition, handling, storage, removal or disposal of biohazardous materials on behalf of the Biology Laboratory and Preparation Room.

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### Guidelines

1. Biohazardous materials shall only be used when equipment is adequate to control exposure to Risk II pathogens as defined by the Public Health Canada Laboratory Biosafety Guidelines. Personal Protective equipment must be worn at all times.
2. Individuals working with biohazardous materials shall be trained and supervised.
3. Biohazardous materials shall be stored, secured, transported and handled in an appropriate manner, with regular inventory of all materials.

### Roles and Responsibilities

The **College** acknowledges its responsibility for the safe acquisition and transport of biohazardous materials and is responsible for the safe handling and disposal of biohazardous waste as established in *Heritage College Administrative Procedure #9 Relating to Safe Disposal/Recycling of Hazardous Waste* and *Heritage College Administrative Procedure #10 Relating to Safety – Disposal of Sharp Items and Needles*.

In addition, the College acknowledges the importance of regularly auditing the effectiveness of the Biosafety guidelines and its associated management system.

The **Responsible Individual**, as indicated under the Human Pathogens and Toxins Act(HPTA), is the individual authorized by Heritage College to represent the College for the purposes of the HPTA. At Heritage College, the responsible individual is the Director General or a delegate.

The **Contact Person**, for the purposes of the present guidelines, and as indicated under the Human Pathogens and Toxins Act, is the individual knowledgeable about the activities conducted in the Biology Laboratory at Heritage College. According to the HPTA, the contact shall have “appropriate safety training in the area of human pathogens and toxins or relevant work experience”(Government of Canada, 2008). At Heritage College, the contact person is the designated Biosafety Officer.

The **Alternate Contact** person is the individual who is knowledgeable about the activities conducted in the Biology Laboratory at Heritage College, and is capable of acting on behalf of, or as an alternate to, the Biosafety Officer. At Heritage College, the alternate contact is designated by the Biosafety Committee and is a Biology Professor with the appropriate safety training who is not the designated Biosafety Officer.

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The **Laboratory Supervisor** is the individual who oversees the operation of all of the laboratories. At Heritage College, the Laboratory Supervisor is the Associate Academic Dean or a delegate. It is the responsibility of the Laboratory Supervisor to:

- oversee the application of the Biosafety rules, guidelines, and procedures and ensure that all reporting individuals reporting assume their responsibilities at their respective levels;
- support the activities of the Biosafety Committee;
- ensure that all concerns of the Biosafety Committee are communicated to the Health and Safety Committee;
- ensure that all work with biohazardous agents is in accordance with applicable legislation, guidelines and recognized codes and standards of practice as per the Canadian Food Inspection Agency(CFIA) and PHAC;
- ensure that training and testing is provided; and
- ensure that adequate resources are available to implement appropriate procedures.

The **Biosafety Officer** is the individual assigned to manage biological safety issues. At Heritage College, the Biosafety Officer is the contact person as registered under the HPTA. The Biosafety Officer reports directly to the Laboratory Supervisor and the Health and Safety Committee to provide information on risk assessment or to address specific safety problems, concerns or policy improvements. It is the responsibility of the Biosafety Officer to:

- regularly inspect the Biology Laboratory for hazardous conditions, and follow-up with the concerns expressed by the Biology/Chemistry Laboratory Technician;
- ensure that biosafety inspections are performed on a regular basis and that recommended corrections are addressed;
- provide a list of the type of training required and a list of who requires training and testing, and report to the Laboratory Supervisor and to the Health and Safety Committee;
- be responsive to concerns expressed about personal, public and environmental security and investigate all incidents or concerns which have occurred in the Biology Laboratory,
- verify that all work with biohazardous agents is in accordance with applicable legislation, guidelines and recognized codes and standards of practice as per the Canadian Food Inspection Agency(CFIA) and PHAC and report to the Laboratory Supervisor;

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- establish a Biosafety Committee, and;
- report all laboratory incidents or concerns involving personal, public or environmental security to the Laboratory Supervisor, the Biosafety Committee and the Health and Safety Committee.

The **Student, Biology Professor and Authorized Personnel** have the responsibility to:

- follow safety rules and procedures;
- be safety conscious in all activities;
- complete required training;
- report as soon as possible any accident, injury, unsafe condition or threat to personal, public or environmental security.

The **Authorized Personnel** are those informed and current with the Biosafety rules, procedures, guidelines and resources established by the Biosafety Committee.

Authorized Personnel are those given access to the Biology Laboratory and Preparation Room only.

Authorized Personnel include:

- Biology Professors;
- Laboratory Supervisor;
- Biology/Chemistry Laboratory Technician;
- Chemistry Professors to Preparation Room only;
- Science Department Co-ordinator;
- Trained maintenance personnel;
- Student Laboratory Assistant;
- Students, if a Biology Professor is present in the Biology laboratory;
- Security;
- All others if accompanied by a Biology Professor, Biology/Chemistry Laboratory Technician or the Science Department Co-ordinator.

All authorized personnel must complete the Biosafety Orientation Checklist (Appendix G6.1).

Authorization will occur annually or upon employment by the College.

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The **Visitor** is not permitted entry into areas where biohazardous materials are used or stored unless permission is granted by the Biosafety Committee and/or the Biosafety Officer. The safety rules of the Biology Laboratory must be followed and the proper Personal Protective Equipment (PPE) must be worn.

The **Biosafety Committee** is mandated to oversee the College's biological safety program. The Biosafety Committee at Heritage College comprises all Biology Professors currently on staff, one Chemistry Professor, the Science Department Co-ordinator, the Laboratory Technician for Biology/Chemistry and the Associate Academic Dean. The Biosafety Committee shall be coordinated with the Health and Safety Committee at Heritage College, which reports to the Management Team. The responsibilities of the Biosafety Committee are to:

- formulate specific safety rules and safe work procedures for the Biology Laboratory and Preparation Room;
- ensure that all Biology Professors and the Biology/Chemistry Laboratory Technician are aware of safety practices and follow safety procedures;
- recommend to the Health and Safety Committee training for staff, faculty, and students.

### **Revision**

The Biology Laboratory at Heritage College is a Containment Level II facility and must comply with the Canadian Food Inspection Agency(CFIA) guidelines outlined in the "Inspection Checklist – Animal Pathogen Containment Level II Laboratories". The Office of Biohazard Containment and Safety(OBCS) reviews their checklist every 2 years to ensure compliance with level II operational requirements for teaching purposes.

The present guidelines will be reviewed at least every five (5) years, and revised when deemed necessary in order to comply with the aforementioned requirements.

### **Glossary**

**Assessment of Risk:** The process of defining the biohazard risks in the Biology Laboratory and Preparation Room at Heritage College.

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**Biosafety** is “the application of knowledge, techniques and equipment to prevent personal, laboratory and environmental exposure to potentially infectious agents or biohazards” (Government of Canada, 2008).

**Biohazardous** material is all material that falls under Class D, Division 3 of the Workplace Hazardous Materials Information System (WHMIS), and includes bacteria, their toxic metabolites, blood and body fluids that may be used in the Biology Laboratory at Heritage College.

**Containment Level:** The combination of physical and operational requirements necessary to work safely with a particular agent or to perform a particular procedure or manipulation safely.

**Environmental Protection:** Protection of the general working environment and the exterior environment from contamination originating within the work space.

**Hazardous Material:** Any substance or mixture of substances having properties capable of producing adverse effects on the health or safety of a human being.

**Hazardous Occurrence:** An unexpected or unplanned event where personal injury or property damage has or could have occurred.

**Microorganism:** A microscopic organism, such as bacterium, protist, yeast.

**Risk Group II:** (moderate individual risk, limited community risk). This group includes pathogens that can cause human disease but, under normal circumstances, are unlikely to be a serious hazard to health laboratory workers, the community, livestock, or the environment. Laboratory exposures rarely cause infection leading to serious disease; effective treatment and preventive measures are available and the risk of spread is limited. Organisms in Risk Group II require containment level II facilities.

**Workplace Hazardous Materials Identification System (WHMIS):** A Canadian system developed to protect workers by providing information about hazardous materials in the workplace. It addresses controlled products, labelling, information disclosure, and worker education. WHMIS is implemented by a series of federal, provincial and territorial acts and regulations.

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### Related Documents

These guidelines are to be used in conjunction with:

- Heritage College Administrative Procedure #7 Relating to Hazardous Material – Identification, Storage and Handling
- Heritage College Administrative Procedure #8 Relating to Safety – Locking Out and Tagging
- Heritage College Administrative Procedure #9 Relating to Safe Disposal/Recycling of Hazardous Waste
- Heritage College Administrative Procedure #10 Relating to Safety – Disposal of Sharp Items
- and Needles
- Procedure #11 Relating to Eyewash Stations
- Guideline #7 Relating to Work-Alone Laboratory Situations

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### Appendix G6.1

#### Biosafety Orientation Checklist

The following checklists were developed to ensure that all authorized personnel have been informed and are current with the Biosafety rules, policies, procedures and resources established by the Biosafety Committee at Heritage College.

Name: \_\_\_\_\_

Position: \_\_\_\_\_

Date: \_\_\_\_\_

A. Biosafety Committee policies and procedures regarding:

- Laboratory responsibilities
- Personal Protective Equipment
- Health and Safety Accident Report Form (Appendix C, Health & Safety Committee)
- Work Alone Guidelines
- Protocol to follow in the event of a Biosafety hazard
- Spill Response

B. Availability and Use of Safety Resources:

- Emergency numbers and procedures (fire, evacuation, biohazardous spills)
- Eyewash Kit
- Emergency Shower
- Spill Kit
- Location of First Aid Kits
- Certified First Aiders
- Health and Safety Committee Policies
- Biosafety Guidelines
- Biosafety Manual
- Work Alone Guidelines

C. Basic Laboratory Biosafety

- Copy of Biosafety Manual
- Copy of Biosafety Guidelines
- Location of Material Safety Data Sheets

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- Instruction on Spill Procedures and location of Spill Kits
- Instruction on Decontamination procedures
- Instruction on waste disposal for sharps and biohazardous waste materials
- Instruction on safe handling and transport of biohazardous materials

### D. Chemical Laboratory Safety

- Instruction on safe handling and transport of chemicals used in the Biology Laboratory
- Instruction on safe disposal of chemicals used in the Biology Laboratory
- Instruction on spill procedures associated with chemicals used in the Biology Laboratory

### E. Laboratory Equipment Safety

- Instruction on safe use of equipment in the Biology Laboratory(e.g. centrifuge, fume hood, BSC, autoclave)
- Instruction on testing for proper functioning of laboratory equipment
- List equipment

### F. Safety Training Requirements

- Workplace Hazardous Material Information System(WHMIS)
- Hazardous Waste Management & Disposal Training
- Transportation of Dangerous Goods
- Introduction to Biosafety(CFIA videos & test)
- First Aid
- General Procedures

The signature below indicates that the above material has been reviewed with this employee by the Biosafety Officer and the employee agrees to follow the prescribed Biosafety rules, guidelines, and consult all available resources.

Signature of Employee \_\_\_\_\_

Signature of Biosafety Officer \_\_\_\_\_

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### Laboratory Responsibilities

It is the responsibility of the **Biology Professor**, the **Laboratory Technician** and the **Student Laboratory Assistant**:

- To be informed of all Biosafety guidelines and College safety instructions, whether written or oral, and to comply with all procedures and instructions ;
- To be safety conscious in all activities;
- To be current in all safety training, operation of equipment and spill protocols;
- To report as soon as possible any accident, injury, unsafe condition or threat to personal, public or environmental security and safety.

In addition:

The **Biology Professor** is responsible for:

- The safe completion of laboratory activities associated with each exercise as outlined in the Biology Laboratory Course Manuals and the Biosafety Manual;
- Ensuring that the laboratory containment area doors are locked after the completion of a laboratory exercise.
- Leave the laboratory safe.

The Laboratory Technician is responsible for:

- Receiving, safely storing and maintaining an inventory of all biohazardous material;
- Ensuring that the MSDS are current and available to all professors;
- Ensure proper safe disposal/decontamination.

Checklist to be kept on file with the Biosafety Officer and Human Resources and updated annually. In the case of new personnel, the checklist will be completed prior to the beginning of the semester.

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### Appendix G6.2

#### BIOLOGY LABORATORY TRAINING

The Laboratory Supervisor must ensure that training is provided. It is recommended that training occurs in the Spring semester for all present personnel, new personnel (i.e. professors) and Student Laboratory Assistant.

TOPIC	SUB-TOPIC	INDIVIDUAL
WHMIS generic	MSDS	All authorized personnel
	Labelling	All authorized personnel
	Biology Laboratory e.g. MSDS location, responsibilities	Biology Professors, Laboratory Technician, Student Laboratory Assistant
Waste Disposal	Biological	Biology Professors, Laboratory Technician
	Chemical	Biology Professors, Laboratory Technician
Laboratory Protocol	Personal Protective Equipment	Biology Professors, Laboratory Technician, Student Laboratory Assistant, Biology students
	Appropriate Microbiological Technique	Biology Professors, Laboratory Technician, Biology Students
Equipment e.g. Fumehood, Biosafety Cabinet, Centrifuge, autoclave	Safe Use and Operation	Biology Professors, Laboratory Technician
Emergency Response	Safety shower, eyewash, fire extinguisher, spill kit, first aid kit	Biology Professors, Laboratory Technician
Immunization	Requirements for bacteria and working with blood products	Biology Professors, Laboratory Technician

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Incident Investigation	Reporting incidents and accident investigation	All authorized personnel
Working Alone	Working Alone protocol, personal safety	Biology Professors, Laboratory Technician
Hazard Signage	Emergency Contact	Biology Professors, Laboratory Technician, Student Laboratory Assistant
	WHMIS symbols	All authorized personnel
Transportation of Dangerous Goods	bacteria	Laboratory Technician, Maintenance Personnel
First Aid		All authorized personnel
Personal Protective Equipment		All authorized personnel

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**HERITAGE COLLEGE ACCIDENT REPORT FORM**

**Appendix G6.3**

This form is to be used for any accident that occurs on Heritage College premises.

**TO BE COMPLETED BY THE PERSON CONCERNED**

**I IDENTIFICATION**

Name \_\_\_\_\_ Employee/Student # \_\_\_\_\_

Address \_\_\_\_\_ Telephone \_\_\_\_\_ Ext. \_\_\_\_\_

Job title/Program of studies \_\_\_\_\_ Department \_\_\_\_\_

**II ACCIDENT INFORMATION**

Date of accident \_\_\_\_\_ Time of accident \_\_\_\_\_

Location where accident occurred (building, floor, grounds) \_\_\_\_\_

Nature of injury/illness \_\_\_\_\_

First aid received? Yes  No  Name of person administering first aid \_\_\_\_\_

Type of first aid received \_\_\_\_\_

Description of event (describe in detail) \_\_\_\_\_

At time of event, describe what you were doing and the reason you were doing it \_\_\_\_\_

Nature and description of damages \_\_\_\_\_

**III POLICE /AMBULANCE (911) INVOLVEMENT**

Was ambulance/police (911) called? Yes  No  Sign below if person refuses to go or be transported to the hospital.

Transported to which hospital, clinic, doctor? \_\_\_\_\_

Ambulance/Police Case Number \_\_\_\_\_ Name of Police officer or person you spoke with \_\_\_\_\_

I \_\_\_\_\_ refuse to be transported to the hospital using an ambulance.

I \_\_\_\_\_ refuse to go to the hospital.

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### IV POSSIBLE CAUSES

Briefly state the reasons why you think this accident occurred \_\_\_\_\_

Do you think this accident could have been prevented? If so, how? \_\_\_\_\_

### V WITNESS(ES)

Name \_\_\_\_\_ Telephone \_\_\_\_\_

Name \_\_\_\_\_ Telephone \_\_\_\_\_

Comments \_\_\_\_\_

### VI MEDICAL CERTIFICATE - only in the case of an employee

Name of doctor consulted \_\_\_\_\_

Time and Date of consultation \_\_\_\_\_

Doctor's address \_\_\_\_\_ Telephone \_\_\_\_\_

Did you submit a medical  
certificate to your employer    Yes     No

Was a CSST form  
completed by your doctor    Yes     No

**I hereby confirm that, to the best of my knowledge, the above information is accurate.**

**Signature:** \_\_\_\_\_      **Date** \_\_\_\_\_

This form **must** be given to:  
Building Services  (original) **and** Health and Safety  (Human Resources).

Copies must also be given to:  
**either** Student Services  if a student was involved **or** Human Resources  if a member of staff, was involved.

(Please check the appropriate boxes before photocopying.)