Biosafety

1. Purpose

To ensure the safety of students, faculty, staff, the community and the environment when using biohazardous materials under the auspices of Simon Fraser University, and to facilitate research, teaching and testing in compliance with the applicable regulations and standards outlined below.

2. Definitions

   **Biological Materials**
   
   a. "Biohazardous Materials" are defined as biological agents and materials that are potentially hazardous to humans, animals and other forms of life. They include known pathogens and infectious agents including bacteria and their plasmids and phages, viruses, fungi, mycoplasmas, and parasites; cell lines, animal remains, and laboratory animals (including insects) which might harbor such infectious agents, primate body fluids and plant materials. Also included are nucleic acids used in procedures such as recombinant DNA and genetic manipulations;
   
   b. "Human materials" are defined as human blood, blood products, blood components, body fluids, tissues or organs;
   
   c. "Animal materials" are defined as animal blood, blood products, blood components, body fluids, tissue or organs;
   
   d. "Plant materials" are defined as plant pathogens, transgenic plants, plant toxins and exotic plants;
   
   e. "Recombinant DNA" are defined as molecules constructed by joining natural or synthetic DNA or RNA segments to DNA or RNA molecules, able to replicate in a living cell.

   **Biosafety Containment Levels**

   Biosafety containment levels are described in general terms. Canadian Biosafety Standards and Guidelines apply except in cases where the research is funded by institutions that require containment practices that conform to those specified by the US CDC.

   f. "CL1" applies to a basic microbiology laboratory, where work may be done on an open bench top;
   
   g. "CL2" applies to a laboratory that handles agents requiring containment level 2. The primary exposure routes associated with organisms requiring level 2 containment are ingestion, inoculation, and mucous membranes. Although these agents are less commonly transmitted by airborne routes, the generation of aerosols must be avoided through use of biosafety cabinets, sealed rotor centrifuges as well as appropriate personal protective equipment;
h. "CL3" applies to a laboratory that handles agents requiring containment level 3. These agents may be transmitted by the airborne route, often have a low infectious dose to produce effects and can cause life threatening disease. Containment level 3 emphasizes additional primary and secondary barriers to minimize the release of infectious organisms into the immediate laboratory and the environment, such as HEPA filtration of exhausted laboratory air and controlled laboratory access.

**Regulators**

i. "HPTA" Human Pathogens and Toxins Act, and all accompanying regulations;

j. "PHAC" Public Health Agency of Canada;

k. "CFIA" Canadian Food Inspection Agency;

l. "NIH" National Institutes of Health;

m. "TDG" Transportation of Dangerous Goods

n. "WorkSafeBC" WorkSafeBC, Occupational Health and Safety Regulation;

o. Metro Vancouver.

**Administrative Requirement**

p. Biosafety Permit" is defined as the document certifying approval by the Biosafety Committee for use of biohazardous materials under specified conditions. Biosafety Permits are granted to SFU faculty or adjunct faculty members proposing to carry out research or teaching involving biohazardous material.

**Personnel**

q. "Principal Investigator (PI)" is defined as the SFU faculty member (or acceptable equivalent as defined in other SFU policies) in charge of a research or teaching project;

r. "Biosafety Officer" shall be appointed by the Vice President, Research, shall be qualified to assume responsibility for the SFU Biosafety Program, and give technical advice on projects and laboratory facilities involving biohazards;

s. "Certified User" is defined as the individual whose name appears on the approved Biosafety Permit;

t. "Laboratory Workers" are defined as all employees, students and visitors conducting research or educational activities under the auspices of SFU in SFU laboratories involving "biohazardous materials" as defined above.

3. **Scope**

This policy applies to all research, teaching and testing involving biohazardous material that is undertaken under the auspices of SFU and/or using the resources of SFU. All projects must have an SFU faculty member (or equivalent as defined in 2q above) as PI. Where the SFU Biosafety Committee grants "in principle" approval for research involving biohazards at another institution, a copy of that institution's permit, for the research, must be filed at SFU.

4. **Standards**

The University adopts standards compliant with:

a. the Memorandum of Understanding between the three Canadian federal granting agencies and Institutions that receive their awards;

b. the policies and procedures of SFU and the SFU Biosafety Committee;
c. all relevant federal and provincial regulations (Human Pathogens and Toxins Act, Public Health Agency of Canada, Canadian Food Inspection Agency);

d. the National Institutes of Health;

e. WorkSafeBC; and

f. Transportation of Dangerous Goods

5. Policy

a. Authority

The SFU Biosafety Committee has the authority, on behalf of the Vice-President, Research, to:

i. stop immediately any use of biohazardous material which deviates from the approval outlined in the Biosafety Permit or is deemed to be in non-compliance with the applicable standards as in part 4.

b. Responsibility

i. The day-to-day requirement to comply with safe use of biohazardous materials in research and teaching under the auspices of SFU is the responsibility of the PI.

ii. All lab workers using biohazardous materials in research or teaching must have the necessary expertise and appropriate training in accordance with the policies of SFU and Standards outlined in part 4. The Biosafety Officer in consultation with the SFU Biosafety Committee will decide upon the appropriate methods of achieving the appropriate expertise and training levels.

iii. The acquisition of all biohazardous materials (by purchase, culture or transfer from another source) must be arranged in accordance with protocols approved by the SFU Biosafety Committee.

iv. The disposal of all biohazardous materials must be in accordance with protocols approved by the SFU Biosafety Committee and in compliance with all relevant federal, provincial and Metro Vancouver regulations and guidelines.

v. The Biosafety Officer, in close collaboration with and support of the SFU Biosafety Committee, is responsible for monitoring the compliance of researchers and instructors with SFU policy and the terms of the approval of their projects. If the Biosafety Officer observes or becomes aware that relevant regulations or guidelines are not being followed in any teaching program or research study, she/he advises the Principal Investigator so that prompt remedial action can be taken. In the event that this is not done to her/his satisfaction, the Biosafety Officer will alert and consult with the SFU Biosafety Committee. In circumstances where the Biosafety Officer is of the opinion that the situation presents an immediate significant risk, the Biosafety Officer may take whatever action she/he considers necessary to remedy the situation. The Biosafety Officer keeps the SFU Biosafety Committee Chair and the Vice President, Research fully informed of such incidents and the reason for the action taken. She/he may also, at her/his discretion, seek the advice of PHAC, CFIA, or other experts as may be appropriate.

vi. The Biosafety Officer maintains up-to-date records of all Biosafety Permits, approved locations, certified users, containment equipment, equipment certifications and personnel training. The Biosafety Officer reports, at least yearly to the Chair of the SFU Biosafety Committee with a summary of such records, and granting agencies as required.

vii. The SFU Biosafety Committee ensures that researchers use appropriate containment facilities for the proposed research involving biohazardous materials.
viii. All proposals involving the use of biohazardous materials in research and teaching require the prior approval of the SFU Biosafety Committee. The detailed responsibilities and powers of the SFU Biosafety Committee are those set out in its Terms of Reference and its Procedures. These are published and may be modified from time to time under the authority of the Vice-President, Research. The current procedures for consideration of Biosafety Permit application for the use of biohazardous materials are attached to this policy.

ix. The Biosafety Officer shall undertake continuing education and training opportunities in biocontainment and security of biohazardous materials.

c. SFU Biosafety Committee membership

The SFU Biosafety Committee members will be appointed by the Vice-President, Research for renewable terms of three to four years. The committee membership should include:

i. five faculty members drawn from key units where faculty members hold biosafety permits. Expertise of the faculty members must encompass microbiology, plant or animal pathogens, recombinant DNA, and containment principles;

ii. the Director of the Animal Resource Centre (or designate);

iii. one member representing laboratory technical staff;

iv. two members representing community interests and concerns, with appropriate expertise in biosafety, and who have no affiliation with the University.

v. the Biosafety Officer;

vi. a graduate student representative;

vii. the Director of Environmental Health and Safety as non-voting resource member;

viii. the Operations Director of the Containment Level 3 Laboratory as a non-voting resource member;

ix. the SFU Biosafety committee must have a Vice Chair who can become designated Chair as required; and

x. a quorum of two thirds of the members should be established for the SFU Biosafety Committee meetings.

d. Standard Operating Procedures (SOPs)

SOPs and other guidelines for compliance inspections, acquisition, use, storage, and disposal of biohazardous materials are developed and published by the Biosafety Officer after having been approved by the SFU Biosafety Committee.

6. Interpretation

Questions of interpretation or application of this policy or its procedures shall be referred to the VP Research, whose decision shall be final.

Link to PROCEDURES that also include Biosafety Committee Terms of Reference AND Biosafety Program Inspections Protocol