Introduction

Environmental Health & Safety would like to welcome you as a new faculty member to Brown University. This packet of information is designed to provide you with the information necessary to make your transition to Brown as smooth as possible, with respect to issues of environmental health and safety. This packet contains information on the following topics:

- An Introduction to Brown University’s Environmental Health & Safety
- Obtaining the Necessary Training for You, Your Staff and Your Students
- Biological and Radiation Research Authorizations
- The Chemical Hygiene Plan

The mission of Brown University’s Environmental Health & Safety (EHS) is to provide services to the University community through a partnership with faculty, staff, and students. EHS staff strives to ensure a safe and healthy community and promotes environmental responsibility. EHS manages various aspects of health and safety (biological, fire, laboratory, laser, occupational and radiation) as well as environmental compliance and emergency response for the University, through regulatory compliance, training programs, emergency preparedness and emergency response.

Contact Information

Main office number: (401) 863-3353

Website: http://www.brown.edu/ehs

EHS Staff: http://brown.edu/Administration/EHS/organizational_chart.html

Director (401) 863-3353
Office Manager (401) 863-3353
Chemical Hygiene Officer (401) 863-1737
Laboratory Safety Specialist (401) 863-7697
Radiation Safety Officer (401) 863-1738
Radiation Safety Specialist (401) 863-3615
Biosafety Officer (401) 863-3087
Environmental Compliance Officer (401) 863-3850
Environmental Specialist (401) 863-1610
Safety Specialist (401) 863-1645
Fire Safety Officer (401) 863-3462
Assistant Fire Safety Officer (401) 863-3462
Obtaining the Necessary Training for You and Your Employees

Regardless of the type of work an individual performs in any given laboratory, Brown University has a responsibility to ensure that all persons are well informed of the hazards that they encounter and that all persons understand what to do in the event of an emergency such as a fire, chemical spill, or explosion. For this reason, it is the responsibility of each Laboratory Supervisor to ensure that everyone working in his or her laboratory meets the training requirements outlined below (if applicable) at the frequency outlined in the Brown University Chemical Hygiene Plan and Laboratory Safety Manual.

<table>
<thead>
<tr>
<th>Type/Requirement</th>
<th>Attendance Intervals</th>
<th>Contact</th>
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</thead>
<tbody>
<tr>
<td>Laboratory Safety Training</td>
<td>Initial Training is required within 3 months of assignment to the laboratory and every 5 years thereafter or as otherwise specified.</td>
<td>Chemical Hygiene Officer</td>
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<tr>
<td>Laboratory Safety Training is required for any individual working (paid or unpaid) in a Brown University laboratory</td>
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<td>(401) 863-1737</td>
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<tr>
<td>Hazardous Waste Training</td>
<td>Initial Training is required within 30 days of assignment and annually thereafter or as otherwise specified.</td>
<td>Environmental Specialist</td>
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<tr>
<td>Hazardous Waste Training is required for ALL individuals who generate and/or handle hazardous waste in a research or teaching laboratory</td>
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<td>(401) 863-1610</td>
</tr>
<tr>
<td>Radiation Safety Training</td>
<td>Initial Training is required prior to working with radioactive materials and every 5 years thereafter or as otherwise specified.</td>
<td>Radiation Safety Officer</td>
</tr>
<tr>
<td>Radiation Safety Training is required for ALL employees who work with radioactive materials or x-ray machines.</td>
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<td>(401) 863-1738</td>
</tr>
<tr>
<td>X-Ray Safety Training</td>
<td>Initial Training is required prior to working with an x-ray machine and every 5 years thereafter or as otherwise specified.</td>
<td>Radiation Safety Officer</td>
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<tr>
<td>X-ray Safety Training is required for ALL employees who work with x-ray machines.</td>
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<td>(401) 863-1738</td>
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<tr>
<td>Laser Safety Training</td>
<td>Initial Training and a baseline eye exam is required prior to working with a Class 3b or 4 laser and every 5 years thereafter or as otherwise specified.</td>
<td>Radiation Safety Officer</td>
</tr>
<tr>
<td>Laser Safety Training is required for any operator or user of a Class 3b or 4 Laser.</td>
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<td>(401) 863-1738</td>
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<tr>
<td><strong>Bloodborne Pathogen Training (BBP)</strong></td>
<td><strong>Biosafety Training</strong></td>
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<td>Training is required for those who work with human blood or bodily fluids; unfixed tissues or organs other than intact skin from a human; cell, tissue, or organ cultures or medium, or animal or human cell lines that have not been documented with the EHS Office as free from contamination of human hepatitis viruses, HIV and other recognized bloodborne pathogens.</td>
<td>Training is required for any person who works with microbial agents pathogenic to humans and/or animals, human blood, tissues, and/or cell lines, rDNA, drugs or toxins used for a biological effect, potentially infectious animal use, exotic microbes, plant pathogens, potentially infectious animals or animal tissues.</td>
<td></td>
</tr>
<tr>
<td>Initial Bloodborne Pathogens Training is required prior to any work in a laboratory that may expose a worker to Bloodborne Pathogens and annually thereafter.</td>
<td>Initial Training and every 5 years thereafter or as otherwise specified.</td>
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</tr>
<tr>
<td>Biosafety Officer (401) 863-3087</td>
<td>Biosafety Officer (401) 863-3087</td>
<td></td>
</tr>
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For training schedules, click here: [http://www.brown.edu/Administration/EHS/training](http://www.brown.edu/Administration/EHS/training)
Biological and Radiation Research Authorizations

A Laboratory Supervisor who plans to conduct Biological Research at Brown University must complete an Application for Authorization. In addition, a Laboratory Supervisor who plans to possess or use radioactive materials in any form must complete an Application for Authorization.

**Biological Research Authorizations**
To comply with US Department of Health and Human Services guidelines on Biological Research for institutions receiving federal funding, Biological Research meeting certain criteria must be reviewed and approved by the Institutional Biosafety Committee (IBC) prior to the commencement of research. While this includes most of the research in Biology and Medicine, Neuroscience, and Psychology, it is not limited to those departments and has recently included research conducted in Physics, Chemistry, and Engineering. An application for Biological Research Authorization includes any research that uses any of the following:
- Microbial agents pathogenic to humans and/or animals
- Human blood, tissues, and/or cell lines
- Any rDNA work INCLUDING exempt from NIH guidelines
- Carcinogens, mutagens, drugs, or toxins used for a biological effect
- Any exotic microbes, animals, or plant use
- Any plant pathogens
- Any potentially infectious animals or animal tissue use
- Any use of agents listed as a Select Agent or Biological Toxin (see 42 CFR 73 – http://www.cdc.gov/od/sap) whether or not exempt or pathogenic

The IBC reviews applications for Biological Research Authorization and determines if there is sufficient training, expertise, equipment and facility requirements for the research to be conducted safely. The IBC meets quarterly (usually) in the months of February, May, September, and December. Applications should be submitted no later than two weeks prior to the IBC meeting date for consideration at the meeting. If you have a Brown NetID, applications can be found online at:

http://www.brown.edu/Administration/EHS/restricted/BSO1.pdf.

If you do not yet have a Brown NetID and would like a copy of the application, you can request it by contacting the Biosafety Officer. Applications should be submitted to the Biosafety Officer, Environmental Health and Safety, Box 1914. Please call the BSO with questions at (401) 863-3087.

**Radiation Research Authorizations**
The first time that a Laboratory Supervisor applies for radioactive material authorization at Brown University, he or she must submit an Application for Authorization to use Radioactive Material (RSO-1). The Laboratory Supervisor should refer to the Radiation Safety Manual to complete this application. The Authorization specifies the radioactive materials the Laboratory Supervisor is permitted to use, the authorized chemical and physical form for those radioisotopes, the possession limits for each isotope, the authorized location of isotope use, and the authorized experimental protocol(s). Each RSO-1 is issued for a four-year term and must be renewed prior to its expiration. The Laboratory Supervisor should be aware that the entire authorization review and approval process may take as long as 3-4 weeks and may take longer for non-routine proposals, although the Radiation Safety Officer (RSO) may grant a 30-day temporary authorization under certain conditions.
When a Laboratory Supervisor applies for a radioisotope authorization, he or she must submit a copy of the RSO-1 form described in the above Initial Application. The Laboratory Supervisor may use one form for all the radioisotopes of interest. The Laboratory Supervisor is encouraged to contact the RSO with any questions concerning completing the forms. The Laboratory Supervisor must sign the forms and mail them back to the RSO. The forms can be submitted for initial review, but a hard copy of the signature page should be submitted.

After the RSO receives the forms, the RSO will review the application and will contact the Laboratory Supervisor to review the application and to review the requirements of the Brown University radiation safety program. The Laboratory Supervisor must complete the Brown University Radiation Safety Training program at the earliest possible opportunity, even though the Laboratory Supervisor may have attended radiation safety training at other institutions and may be an experienced radioisotope user.

After the review is completed, the RSO will pass the application on to the Radiation Safety Committee, along with the RSO’s recommendations regarding approval or disapproval of the application. Once it receives the application, the Committee will review the application and to act on the application at the next scheduled meeting. (Committee meetings are held quarterly). The Laboratory Supervisor should be aware that the entire authorization review and approval process may take as long as 3-4 weeks and may take longer for non-routine proposals. After the RSO receives notice that the application has been approved, a written notification will be sent to the Laboratory Supervisor that the application has been approved. As part of this notification, the Laboratory Supervisor is provided with a copy of a RSO-1 that specifies the radioisotopes that may be used, the possession limits that apply to each radioisotope, the location(s) in which radioisotope use may occur and any conditions that have been imposed on the Laboratory Supervisor’s use of radioactive materials. Radioactive materials may not be ordered until the formal RSO-1 has been issued although the RSO can grant temporary approval.

If you have a Brown NetID, RSO-1 applications can be found online at:


The Radiation Safety Manual can be found online at:


If you do not yet have a Brown NetID and would like a copy of the application and/or the Radiation Safety Manual, you can request it by contacting the Radiation Safety Officer. Applications should be submitted to the Radiation Safety Officer, Environmental Health and Safety, Box 1914. Please call the RSO with questions at (401) 863-1738.

**Radiation-Producing Equipment**

**Radiation-Producing Devices**

A Laboratory Supervisor who plans to possess or use any radiation-producing equipment such as an analytical x-ray unit, irradiator, accelerator, or electron microscope must first fill out the Application for Authorization to use Radiation Producing Equipment or Device (RSO-1X), as well as the State of Rhode
Island Analytical X-ray Facility Registration Form. Each authorization is issued for the life of the equipment unless there are changes to the equipment that could affect the safety of the lab personnel.

The process begins with the new Laboratory Supervisor letting EHS know that he or she wishes to purchase or is bringing in said equipment. They will then be given a copy of the Radiation Safety Manual as well as a copy of the RSO-1X. The RSO-1X form asks the researcher to include the following:

- Researchers that will be working under this authorization
- Description of the equipment and location
- How the equipment will be used
- Instruments used for monitoring and surveying
- Protective equipment needs such as dosimetry needed, interlocks and any additional safety features
- If the equipment will be used with students, how it will be used and how will the students be protected
- And the researchers training and experience with radiation producing equipment;

Once the researcher has completed the RSO-1X form, it is then reviewed by the Radiation Safety Officer for completeness and for any clarification by the researcher, if needed. The application is then reviewed by the Radiation Safety Committee who will approve, deny or request more information from the researcher, as necessary.

All workers including the Laboratory Supervisor will also have participate in online X-ray Safety Training and fill out the form, X-ray User Certification (RSO-25). The X-ray Safety Training is required every 5 years but refresher training can be provided if necessary. If the Laboratory Supervisor or personnel are working with a piece of open beam equipment, then the personnel will need to wear dosimeters and complete the form, Application for Radiation Dosimeter (RSO-8). Many times only an area monitor may be needed and the Radiation Safety Officer can make that determination. All dosimeters are exchanged on a quarterly basis.

If you have a Brown NetID, you can download the following documents online:

- RSO-1x  ([http://www.brown.edu/Administration/EHS/restricted/RSO1x.pdf](http://www.brown.edu/Administration/EHS/restricted/RSO1x.pdf))

If you do not yet have a Brown NetID and would like a copy of any of the above documents, you can request them by contacting the Radiation Safety Officer at (401) 863-1738.

**Lasers**

A Laboratory Supervisor who plans to possess or use any Class 3 or 4 Lasers must first fill out the Laser User Registration form (LSO-1) for each laser.
The process begins with the new Laboratory Supervisor letting EHS know that he or she wishes to purchase or bring in the lasers. He or she will then be given a copy of the Laser Safety Manual as well as a copy of the LSO-1. The LSO-1 form asks the researcher to include the following:

- Researchers that will be working with the lasers
- Description of the equipment and location
- How the equipment will be used
- Protective equipment needs such as eyewear needed, interlocks and any additional safety features;

Once the researcher has completed the LSO-1 form, it is then reviewed by the Radiation Safety Officer for completeness and for any clarification by the researcher, if needed. The application is then reviewed by the Laser Safety Committee who will approve, deny or request more information from the researcher, as necessary.

All workers including the Laboratory Supervisor will also have to participate in online Laser Safety Training and to fill out the form, Laser User Certification (LSO-2). The Laser Safety Training is required every 5 years but refresher training can be provided if necessary. If the Laboratory Supervisor or personnel are working with a piece of open beam equipment, then the personnel will need to wear eyewear and to complete the form, Laser Eyewear Selection (LSO-3). Once the type of eyewear is appropriately selected in accordance with the laser, it will be ordered by the Laser Safety Officer.

If you have a Brown NetID, you can download the following documents online:

- LSO-1 (http://www.brown.edu/Administration/EHS/public/LSO1.pdf)
- LSO-2 (http://www.brown.edu/Administration/EHS/public/LSO2.pdf)
- LSO-3 (http://www.brown.edu/Administration/EHS/public/LSO3.pdf)

If you do not yet have a Brown NetID and would like a copy of any of the above documents, you can request them by contacting the Laser Safety Officer at (401) 863-1738.
The Chemical Hygiene Plan & Laboratory Safety

An Occupational Safety and Health Administration (OSHA) standard titled "Occupational Exposures to Hazardous Chemicals in Laboratories" was enacted in 1991. This standard requires all organizations with laboratory employees to implement exposure control programs and to convey chemical health and safety information to laboratory employees working with hazardous chemicals.

The standard’s intent is to ensure that laboratory employees are apprised of the hazards of chemicals in their work area, and that appropriate work practices and procedures are in place to protect laboratory employees from chemical health and safety hazards. The manner in which Brown University is complying with each of the elements in OSHA’s Laboratory Standard is detailed in the Chemical Hygiene Plan & Laboratory Safety Manual (CHP). When you arrive, please contact the Chemical Hygiene Officer (CHO) for a complete copy to keep readily available to you and your employees. In addition, a copy of this standard and its appendices may be obtained by visiting EHS’s web site at:

http://www.brown.edu/Administration/EHS/lab

Each Laboratory Supervisor is required to develop and submit Standard Operating Procedures (SOP’s) for his or her laboratory, relevant to safety and health considerations to be followed when laboratory work involves the use of hazardous materials. Upon request, the Chemical Hygiene Officer (CHO) is available to assist in the development of Standard Operating Procedures. If you have a Brown NetID, the instructions and templates for developing the SOP’s can be found online at:

http://www.brown.edu/Administration/EHS/restricted/sop.doc

If you do not yet have a Brown NetID and would like a copy of the instructions and templates for developing the SOPs, you can request it by contacting the Chemical Hygiene Officer at (401) 863-1737.

Shipping and Inventorying Hazardous Materials

Having and maintaining an up-to-date chemical inventory database will be required after you arrive at the University. Please send a copy of your chemical inventory (with chemical name, manufacturer, product number and quantity) to EHS before your arrival. Faculty should confirm that all hazardous materials (chemicals, biological materials, radioactive materials) are transported in accordance with all Department of Transportation (DOT) guidelines and shipping requirements and that shipping is performed by a licensed transporter. After you arrive, please send a copy of your inventory to the Chemical Hygiene Officer, EHS, via campus mail to Box 1914.