

Name: Minors in Laboratories and Shops	Effective: February 27, 2015
Areas Affected: Shops and Laboratories on campus	Reviewed/Revised: February 27, 2015
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Subject Matter Experts: Senior Laboratory Safety Specialist Director of Environmental Health and Safety	

Purpose, Applicability, and Scope

Purpose- To establish a safety policy and plan for University departments or coordinated programs hosting minors who will be performing independent work in laboratories and shops. Minors participating in supervised instructional programs (e.g. Governor’s School, KidsU, etc.) or University-hosted/guided tours are excluded from this policy.

Minors shall be permitted in labs and shops as defined in this plan only if they are engaged in university-sponsored activities.

This policy does not contemplate or authorize a minor who is not enrolled in the University as a student to be hired as a University employee. Approval of the appropriate department head is required to hire a non-University student under the age of eighteen (18) as a University employee.

Abbreviations, Acronyms, and Definitions

Abbreviations/Acronyms

ACGIH – American Conference of Governmental Industrial Hygienists
 CFR – Code of Federal Regulations
 dBA – Decibels, A-weighted scale
 EHS- Campus Environmental Health and Safety
 IDLH – Immediate Dangerous to Life and Health
 NFPA – National Fire Protection Association
 NIOSH – National Institute for Occupational Safety and Health
 OSHA – Occupational Safety and Health Administration
 PI – Principal Investigator
 SCBA- Self-Contained Breathing Apparatus
 SCUBA – Self-Contained Underwater Breathing Apparatus
 TCA – Tennessee Code Annotated

Definitions

“Campus Safety Resources” includes the following groups:

1. Biosafety Office
2. UT Knoxville Office of Environmental Health and Safety
3. UT Institute of Agriculture Safety Office
4. Radiation Safety Office
5. Risk Management Office

“Hazardous Substance” is defined as a chemical, biological, or radiological substance capable of causing injury. “Hazardous Substance” includes definitions, classifications, and criteria established by 29 C.F.R. 1910.1200 Appendix A.

“Laboratory” is defined as a location where teaching, experimentation, or research occurs that involves hazardous substances or physical hazards. Examples include, but are not limited to, chemistry labs, biology labs, and chemical engineering labs. The term laboratory does not include computer labs, geography labs, and similar spaces.

“Minor” is defined as any individual under 18 years of age and not enrolled in the University as a student.

“Physical hazard” includes, but is not limited to, the following:

1. Exposed energized conductors operating at more than 50 volts AC
2. Shear points, crush points, nip points, or run-in points that are not adequately guarded
3. Pressure vessels operating in excess of 15 pounds per square inch for compressed gases
4. Flammable liquids, solids or gases as defined by NFPA 30: Flammable and Combustible Liquids Code
5. Cryogenic fluids and reactive materials as defined by defined by NFPA 45: Standard on Fire Protection for Laboratories Using Chemicals
6. Noise above 90 decibels, A-weighted scale, averaged over an 8-hour day
7. Non-ionizing radiation that exceeds standards published by the American Conference of Governmental Industrial Hygienists (ACGIH)
8. Equipment producing ionizing radiation

“Principal investigator” is the administrative head of the research laboratory or shop. The principal investigator determines research/work objectives, designs experiments, and assigns responsibilities to laboratory/shop staff and students.

“Shop” is defined as an area where wood, metal, masonry, plastic or similar products are manipulated by any means, such as cutting, drilling, boring, fastening (nails, rivets, screws, welds, etc.), sanding, grinding, heating, priming, finishing, or any similar activities.

“Supervisor” is defined as the PI or other senior individual assigned by the PI who is competent in and can responsibly oversee the research/work procedures being performed to include proper technique(s) and safety precautions.

Roles and Responsibilities

1. The PI or designated supervisor shall:

- a. Complete the Safety Assurance form attached, Appendix A
- b. Ensure minors have received appropriate site-specific training
- c. Conduct a hazard assessment for the minors’ assignments
- d. Consult with campus safety resources as necessary
- e. Provide any necessary personal protective equipment
- f. Ensure minors do not undertake activities listed in Appendix B – Prohibited Activities
- g. Maintain records as required under Recordkeeping section below

2. Campus Safety Resources shall:

- a. Provide guidance to departments, supervisors, and PI regarding this procedure
- b. Develop general lab/shop safety training
- c. Work with campus deans, directors, department heads, or program managers to ensure this procedure is disseminated
- d. Review and revise the procedure periodically
- e. Maintain records as required under Recordkeeping section below
- f. Keep the most current version of this procedure posted in the EHS safety manual and on safety office websites

Hazard Assessment and Safety Assurance

The PI or supervisor shall conduct a hazard assessment of the tasks likely to be conducted by the by minor(s). Note that the Campus Safety Resources are available to assist with the hazard assessment. The hazard assessment shall be documented.

No minor shall be permitted to participate in prohibited activities as listed in Appendix B – Prohibited Activities.

The PI or supervisor will prepare a descriptive form that describes the minor’s tasks, to be signed by the minor and the parent/guardian. A template for this form is attached as Appendix A. This descriptive form must include, at a minimum, the following:

1. A detailed description of the minor’s activities so that the minor and parent/guardian can make an informed decision about all risks associated with the proposed activity.
2. Hazard specific safety training that must be completed by the PI or supervisor with the minor.

3. Assurance that the minor will be supervised at all times while in the facility and never left alone.
4. Assurance that the laboratory/shop will be in full compliance with all applicable University safety programs and regulations.
5. Identify the PI or supervisor responsible for the minor's activity so that minors/parents/guardians know who to contact with questions or concerns about the activity.
6. The date(s) of the proposed activity for the minors/parents/guardians to consider.
7. Clear, unambiguous language that is understandable to a layperson.
8. A release completed by each minor/parent/guardian.
9. Adequate time for each minor/parent/guardian to review the descriptive form and sign the release.

Training and Information

A general safety orientation shall be provided and maintained by Campus Safety Resources. An electronic format will be made available through Campus Safety Resources' websites. Minors shall take all applicable modules (e.g. chemical safety, biological safety, etc.) of the general, self-study safety orientation before beginning work. In addition, a quiz shall be used to highlight key points and document understanding of the information. Quiz results should be forwarded to Campus Safety Resources so that completion of this requirement can be documented (see Recordkeeping Section below).

The minor's primary supervisor or PI shall address site-specific safety subjects. Subjects for this training shall be developed from the hazard assessment.

Recordkeeping

The following records shall be maintained as part of this program:

1. Training – general and specific
2. Written hazard assessment to cover any hazardous materials or associated procedures in the lab or shop (e.g. chemical hygiene plan; material safety data sheets; Institutional Biosafety Committee-approved registration documents for recombinant DNA, infectious agents, or biological toxins; standard operating procedures which address risk and risk mitigation)
3. Safety Assurance (Appendix A)

These records shall be maintained for at least three years in accordance with safety procedure GS 43: Records Retention for Safety, Health and Environmental Protection, found in the safety manual. Records shall be kept longer in the event the minor is injured or if litigation is expected.

Campus Safety Resource offices shall be responsible for maintaining the general safety training records. The PI or supervisor is responsible for maintaining the lab- or shop-specific safety training documentation, safety assurance forms, and written hazard assessments as listed above.

Standards and References

29 C.F.R. 1910.1200 Appendix A
T.C.A. 50-5-106

Appendix A – Safety Assurance

Name of Minor _____

Worksite Location _____

Activity(ies) _____

Attach additional information if necessary

Responsible Principal Investigator or Supervisor

I agree to sponsor the minor(s) identified above and by my signature below agree that:

1. I have read, understand, and will adhere to The University of Tennessee policy on “Minors in Laboratories and Shops.”
2. I will ensure the student has received the necessary training before participating.
3. I have reviewed or will review with the minor at the time of arrival on campus the hazards involved with participating in the lab or shop.
4. I have confirmed that necessary personal protective equipment appropriate for, and specific to, hazards will be provided.
5. This individual will be supervised at all times while in the laboratory or shop and never left alone.
6. The laboratory or shop in which the minor will be working is in compliance with all applicable University of Tennessee safety programs and regulations.

Name of Principal Investigator or Supervisor:	
PI/Supervisor Phone:	PI/Supervisor Email:
Signature:	Date:

Minor

1. I have read, been told, and agree to follow the safety policies of The University of Tennessee.
2. I acknowledge and agree that there are risks involved with the activity(ies) as described above.
3. I agree to complete safety/hazard or other required training provided by The University of Tennessee before participation in the activity(ies) described above.
4. I choose to voluntarily participate in this activity with full knowledge that the activity(ies) described above may be hazardous to me.
5. I agree that my participation may be suspended at any time, at the discretion of The University of Tennessee and its officers, agents, and employees, if I jeopardize my own safety or the safety of others.
6. I agree to release, indemnify, and hold harmless The University of Tennessee for any loss, liability, damage, or costs, including court costs and attorney's fees, that may occur as a result of my negligent or intentional act or omission while participating in the activity(ies) described above.

I HAVE CAREFULLY READ THIS DOCUMENT AND HAD SUFFICIENT TIME TO ASK QUESTIONS AND BE GIVEN ANSWERS. I SIGN THIS DOCUMENT VOLUNTARILY.

Name of Minor (print):	
Signature:	Date:

Parent/Guardian

I, _____, (PRINT NAME) am the parent or legal guardian of the participant who has signed above.

1. I have read and understand what my child will be doing and the risks involved.
2. I understand that I may contact the PI or supervisor if I have questions or concerns.
3. I agree that my child's participation may be suspended at any time, at the discretion of The University of Tennessee and its officers, agents, and employees, if the safety of my child or others becomes a concern.
4. I certify my child has adequate health insurance necessary to provide for and pay any medical costs that may directly or indirectly result from my participation in the activity(ies) described above.
5. I have read and I understand this information and I consent to my child taking part in the activity(ies) described above, and I fully enter into and agree to the above Assumption of Risk and Release from Liability set forth above.

Name of Parent or Legal Guardian (print):	
Signature:	Date:

Appendix B -- Prohibited Activities

The follow list of activities shall not be undertaken by minors:

1. Confined Spaces – Entry into a permit-required confined space
2. Fall Hazards - Presence where an unguarded fall hazard exists. Note this does not apply to ladders
3. Hot work involving welding, brazing or torch cutting
4. Lockout/Tagout - Equipment maintenance, set-up, repair, adjustment or testing that would require lockout/tagout
5. Excavation and Trenching - Presence in excavations
6. Heavy Equipment - Operation of backhoes, front end loaders, forklifts, bulldozers, trackhoes, bobcats, and similar heavy equipment
7. UT Vehicles - Operation of UT vehicles, including all-terrain vehicles, motorcycles, carts, and any other motorized or electric conveyances
8. Unguarded Power Transmission - Presence in close proximity to unguarded power transmission equipment such as fly wheels, rotating parts, drive belts/pulleys, screw conveyors, or any similar equipment
9. Operation of power-driven woodworking machines
10. Operation of power-driven metal-forming, punching and shearing machines
11. Operation of circular saws, band saws and guillotine shears
12. Hazmat Spills - Clean up spills of hazardous materials
13. Presence near powder-actuated fasteners
14. Scaffolding - Presence on scaffolding more than 10 feet above the ground
15. Construction Sites - Presence on construction sites
16. Exposure to noise sources exceeding 90 dBA
17. Handling open sources of radioactive materials, exposure to x-ray machines, or being left unattended with any type of ionizing radiation
18. Non-ionizing Radiation – Exposure to laser in hazard classes III or IV; exposure to non-ionizing radiation sources exceeding standards established by the American Conference of Governmental Industrial Hygienists
19. SCBA - Presence in situations where a self-contained breathing apparatus is necessary
20. IDLH - Presence in situations that are considered immediately dangerous to life and health as defined by the National Institute for Occupational Safety and Health (NIOSH)

21. Imminent Danger - Presence in situations that are considered an imminent danger (per safety policy number GS 102 (Imminent Danger); see the UT EHS Safety Manual at <http://web.utk.edu/~ehss/>)
22. Diving/Swimming – Where a self-contained underwater breathing apparatus (SCUBA) is used
23. Activities in or about establishments manufacturing or storing explosives or articles containing explosive components
24. Operation power-driven hoisting apparatuses
25. *Chemicals Requiring Approval Prior to Use* (per safety policy number HM 45; see the UT EHS Safety Manual at <http://web.utk.edu/~ehss/>) are not appropriate for minors to work with directly or in close proximity. These include chemicals which may be highly flammable or explosive, may have extremely unfavorable health implications, or possess a significant risk larger than the intended academic benefit
26. Any other activities that the Commissioner of Labor and Workforce Development has declared by regulation to be hazardous or injurious to the life, health, safety and welfare of minors