

How to Access and Use the Wright Lab Research Support Shop: Procedures and Rules

Revised November 4, 2016

Governing Principles

1. Undergraduate students, graduate students, postdocs, faculty, and other university employees can work in the Wright Lab (WL) shop areas at the same time.
2. The Wright Lab research support and teaching shops will meet the safety requirements of the Yale student shops as detailed in the Wright Lab shop rules.
3. At present the WL shop will only operate during business hours with shop supervision.

Getting Access

The rules described in these documents apply to all users including students, postdocs, faculty, and university staff.

1. All users must attend a EHS safety orientation and user review meeting, and obtain shop training. The safety orientation may occur through an existing class conducted by one of the shop supervisors or in cooperation with EHS. Faculty mentors or supervisors for those requesting access must also attend the same orientation at least once.
2. The topics to be covered in the user review meeting are described in Attachment C.
3. Attendance will be taken at the EHS orientation and user review meeting. Records of attendance will be kept in the WL shop office so that a list of authorized users is readily available to Shop Managers, WL management, and others.
4. Attendants will obtain credit for Tool / Machine Safety Awareness training course in Yale Training Management System (TMS) database.

Attachments: Rules, Shop Concept, Orientation

- A. Wright Lab shop rules
- B. Wright Lab Integrated Shop Program
- C. Topics covered in EHS and user orientation meeting

HOURS OF OPERATION:

Wright Lab SHOP RULES

Never work alone, a Supervisor must be present at all times for students, postdocs, and research staff.

Safety glasses must be worn at all times in the shop. Some operations and equipment may require additional personal protective equipment.

No loose clothing may be worn in the shop, including ties, scarves, and loose sleeves. Open-toed shoes, short pants, or skirts are also prohibited.

Remove jewelry before beginning work, including rings, necklaces, bracelets, and watches.

Long hair must be pulled back and secured and contained; long beards must also be contained.

Aisles, exits, and access to emergency equipment must be kept clear at all times.

Cell phones, mp3 players, and other personal electronic devices must not be used when working at any machine. Loud music is prohibited.

Food and drinks are permitted in designated areas only.

Approval to operate power equipment must be obtained prior to use.

All guards and shields must be secured and in place prior to operating equipment.

Compressed air must not be used to clean skin or clothing.

Damaged equipment, or equipment that does not appear to be operating normally, must not be used. Tag it as out of service and report the issue to the Supervisor. **Immediately report** all problems or concerns to the Supervisor.

Supervisors have full authority over the shop and its safe use and may prohibit shop or tool access for any reason including for the safety of an individual, others in the shop, or the equipment.

Coordinate all work with Supervisors. Obtain authorization from the Shop Supervisor for shop access and tool use.

EMERGENCY CONTACTS:

911
203-785-3555
203-432-0123

MEDICAL, POLICE, FIRE
YALE EHS – HAZARDOUS MATERIALS
YALE HEALTH – MINOR MEDICAL

November 2016

Wright Lab Integrated Shop Program

Revised 11/04/2016

Mission

The mission of the Wright Lab Shops is to provide instruction and training in essential machine shop skills for the broader Yale community, enabling research and instrument prototyping, and supporting teaching efforts on and near Science Hill. The Wright Lab shops will also provide an introduction to rapid development and prototyping methods used in the modern scientific workforce. Activities of the Wright Lab shops will provide students, researchers, and staff with training and workforce development opportunities through direct instruction, workshops, and hands-on training.

Role on Science Hill and Yale Campus

The new, integrated shop program at Wright Lab complements the professional services and fabrication capabilities of the professional machine shop and the undergraduate-oriented mission of the CEID. The Wright Lab shops are open to all users on campus. The Wright Lab shops fill a niche in shop instruction, enable research, and allow instrument prototyping for the broader Science Hill and campus community.

Objectives

The focus of the new, integrated shop program at the Wright Lab is on

- teaching machine shop skills
- enabling research and instrument prototyping

Machine shop training is provided through direct instruction in one of the shop classes or through hands-on learning and training by shop supervisors on individual machines as part of a research project.

Research support is provided by enabling researchers to design, machine, and prototype parts needed for a variety of projects. The functionality, complexity, and precision of these parts may be limited. The shop's goals are complementary to the mission of the professional machine shop.

An Integrated Shop Concept

By integrating the functionality of the former SCL teaching shop and the SPL student shops, and adding modern capabilities for rapid prototyping, the objectives of the new Wright Lab shops are to:

- achieve better shop safety and economy through co-location
- provide hands-on learning through the integration of teaching and research
- continue shop instruction through dedicated classes
- deepen the machine shop experience through project-oriented teaching
- introduce students and researchers to modern shop and prototyping techniques
- support the research mission of groups on Science Hill

- centralize and modernize machine shop resources

Equipment and Shop Layout

The Wright Lab shop is designed as one integrated space. Several machines will be reserved for teaching during scheduled class time but no duplication or separation of machines is foreseen for research and teaching. During class time research projects should not interfere or disrupt the teaching. Several machines will be reserved for research purposes so that longer-term research projects do not interfere with the teaching mission of the shop. The integration of teaching and research allows a flexible use of spaces based on needs, class enrollment, etc. When shop classes are not in session all machines will be accessible to users depending on user authorization, and shop supervision.

Shop Users

The shop users of the new shop program at the Wright Lab include the following groups:

- undergraduates (from the sciences as well as arts, etc)
- graduate students (primarily from the physical sciences)
- research and teaching support specialists
- research scientists
- faculty
- university staff

Important things to note about this group are:

- This group reflects a wide variety of experiences. Even amongst one type of user (e.g. graduate students) there might be a great variation in skill and experience.
- Shop safety and oversight is required for all of the above users.
- To ensure proper training undergraduates are expected to take the shop class.

Additional shop users at the Wright Lab may include

- Visiting graduate students, postdoctoral fellows, or faculty who come to work with research groups at Yale for extended periods of time.
- Summer research students

These users must undergo the same training and authorization process as other users.

Shop Safety

The shop will be operated under the WL shop rules.

Safety in the Wright Lab shop will be accomplished through

- Access control
- Supervision
- Training and education
- Equipment safeguards and controls
- Shop user support and accountability

Training

Training will be provided in multiple forms. At a minimum, all users must receive training on

- Yale's student shop policies and practices
- Wright Lab shop rules
- Training requirements
- Use of personal protective equipment
- Use of tool and equipment guards,
- Appropriate clothing and
- Never working alone.

This training may take place as part of classes or through orientations offered in cooperation with EHS. The document "*Wright Lab Integrated Shop: EHS Orientation and User Review Meeting Outline*" outlines the topics to be covered in the user orientation. Faculty mentors or supervisors for those requesting access must also attend the same orientation at least once.

Shop supervisors will provide formal instruction either through organized classes in the teaching space of the WL shop or more flexible hands-on training in the context of research projects. Users with verifiable previous experience can be checked out and authorized for use of the shop by the shop supervisors, most typically through an extensive period of shop work under direct supervision and monitoring by a shop supervisor. Training on tool specific hazards will be covered with users as part of the class or hands-on training. Under the supervision of the shop supervisors access to machines can be granted based on skill level.

Supervision

During normal working hours shop supervisors will provide supervision and support. As noted above, the shop will operate under policies and Tool Risk Grouping outlined for the operation of Yale student shops: <http://ehs.yale.edu/student-shop-safety-policies-and-practices>.

Access Control

The shop supervisors will verify that only users with appropriate training are working in the shop. A list of authorized shop users will be kept in the WL shop office at all times so a list of authorized users is readily available to shop supervisors, WL management, and EHS.

Wright Lab Integrated Shop: EHS Orientation and User Review Meeting Outline

Revised October 31, 2016

- For use when meeting with those who will be granted access to the WL Integrated Shop.
 - Prospective user, user's supervisor (or faculty mentor), WL Integrated shop supervisor and EHS representative must be in attendance.
 - Meeting must be held prior to providing access to user.
 - A skills assessment will determine which tools the user may access.
- I. Review of the WL Integrated Shop concept**
- a. User will be introduced to the integrated shop concept
 - b. User will be reminded that the shop is run as a student-access shop under WL shop rules with appropriate restrictions
- II. Shop Safety Overview**
- a. Background and Purpose
 - b. Authority and Responsibilities
 - c. Shop Classification and Control
 - d. Standard Shop Postings
 - e. Emergency Response Procedures
 - f. Personal Protective Equipment
 - g. Accident / Incident Reporting
 - h. Fire Prevention
 - i. Chemical Safety
 - j. Inspections of Shops
 - k. Power Tools and Equipment Safety and Training
- III. Review of WL Shop and Student Shop Rules**
- IV. Review of WL Safety Procedures**
- a. Phone location
 - b. Emergency stops
 - c. Safety station
- V. Roles and Responsibilities**
- a. Users must ensure and enforce safety compliance at all times
 - b. Report all incidents to appropriate supervision or management immediately
 - c. Restrict access to authorized individuals only
 - d. Acknowledge shop supervisors have full control over access to the shop
 - e. Coordinate shop use activities with shop supervisors

Name (printed):	Net ID:
Faculty PI or Supervisor (printed):	Net ID: