Guidelines for Equipment Use at the Ray W. Herrick Labs

1. Everyone Shares Equipment

We share equipment (and facilities) at the Herrick Labs and we all work together to schedule use so that everyone can make progress on their research. We are each responsible for taking good care of equipment.

2. Preserving Our Equipment Pool

We need to operate in a manner that helps ensure that equipment is in good condition when it is needed. Only use equipment that you are knowledgeable about.

- **Educate yourself:** If you do not know how to use a piece of equipment, it is your responsibility to find someone who can help you learn how to use the equipment and understand how to protect it from being damaged. The shop can help you find the right people. Read the manuals. Find out the cost of replacement.
- **Teach others:** If you know how to use certain equipment, it is your responsibility to help others learn how to use it properly. By all means offer an informal workshop (Friday pm) if a group of people want to learn about the equipment.
- **Loaning equipment checked out to you:** Only done on a short term basis, in general, better to do this officially with a Check-I/ Check-Out procedure through the shop.
  (1) Never lend your equipment to people who do not know how to use and care for it.
  (2) Make sure that you know where it is going to be used and that you can retrieve it, if necessary.
  (3) Make sure that it is in good working order when you lend it and when it is returned to you.
  (4) Make sure that the person knows that if it is damaged while in their care, it is their responsibility to organize and find funds for its repair and/or replacement.
- **Broken equipment:** If equipment is broken, it needs to be repaired or replaced:
  (1) report it to your major professor,
  (2) return it to the shop and explain how it was damaged.
  Professors include funds in research projects to cover replacement of smaller items, and they share the costs on larger pieces of instrumentation depending on available resources.
- **New equipment:** When we have new, complicated equipment that no one has used before:
  (1) arrange for some training from the vendor on use and calibration (perhaps arrange for a Friday pm workshop in the Hudelson room so others can learn, too),
  (2) work with the Shop so that they also can gain expertise with this instrumentation,
  (3) while reading the manual and learning about the equipment, make user friendly notes to be kept with the equipment for future users (put copies of these notes with the manuals in the shop).

3. We Need to Know We Have the Equipment and its Location

- **Up to date Shop inventory:** All equipment must be tagged by the shop. When new equipment arrives, make sure it is put into the Lab inventory.
- **Shop knows location:** All instrumentation must be checked out from the shop, and you should inform them of where it is to be used so that they can locate it if they need to.
- **Project specific instrumentation:** When equipment is bought for a specific project, that project has first call on its use. Hence, equipment **<u>may</u>** be kept out in the Labs with specific projects but:
  - its location must be known by the shop,
  - it should be shared with other projects, if possible (see note 1),
  - when your project ends, the equipment must be checked back into the shop.
- **Short-term "borrowing" of general purpose equipment (analyzers, filters, meters etc.) from other projects:** In all but exceptional circumstances, don't "borrow" equipment from other set-ups without the consent of the student running that experiment. If you absolutely need to do so (i.e., there is no alternative equipment available), and you cannot find the student to get their permission, after trying many times to so, contact their major professor and the shop. If they agree, it is OK to borrow the equipment:
  - be careful that you do not compromise the experiment when removing the equipment,
  - be 100% certain that you can use and care for the equipment properly,
  - leave a note saying where the equipment is being used and give contact information,
  - return the equipment in the same condition (or better) than it was in when you borrowed it, and do so quickly.
- **Don't keep instrumentation you are no longer using:** Check the instrumentation back into the Shop. If someone is taking over the use of this instrumentation, do an official Check In/Check Out with the shop, so we know who is currently responsible for the equipment.
- **Periodic shop check in-check out for equipment in long-term use:**
  For equipment tied up in specific projects: we need to confirm that equipment is still in good working order,

doesn't need manufacturer calibration, and that we really do know where it is. Thus, if possible, equipment needs to be checked back in and out periodically, and you should check that the list of equipment that the shop has checked out to your name is the same as the equipment that you think is checked out to you. We will work on developing a process where this can be done efficiently. Meanwhile attached is a form that you can use to keep track of what you have.

4. Out of Herrick equipment use: Off campus, in ME, Kepner, or Zucrow etc.

- There is paperwork to fill in to make sure that we are insured in case of theft or breakage. Donna Cackley and Judy Hanks have the forms.
- If you are doing this on a regular basis, fill in the information and make copies, so you can easily complete the paperwork next time. Do not keep it at the remote location, if it is not being used.
- Don't forget to tell Donna or Judy and the Shop when the equipment comes back to the Laboratories

5. Calibration

There are many levels of calibration. Ones that you can do locally and ones that the manufacturer needs to do. **Calibration should be done at the start of an experiment, periodically through a long experiment and at the end of the experiment.** Rule, you cannot do calibration too often.

- **Your calibration procedure** is done so: (1) you can ensure that the instrumentation is working properly and (2) you can translate volts out of the measurement chain back into physical units (Pascal, m/s^2, K, etc.) and understand how many volts/amps etc. produce the desired physical input to a system. Clearly, you will need to calibrate before you embed sensors into a set-up that makes them difficult to remove and calibrate. Even, when you cannot do a full scale calibration, you should devise a simplified calibration procedure to satisfy yourself that the instrument is working properly.
- Periodically equipment does need to be sent **back to a manufacturer for a much more rigorous calibration**, particularly instrumentation that you are using to do your local calibration. Time cycle for calibration depends on the instrumentation. When using equipment, check when it was last calibrated. No point in doing a long set of experiments with instrumentation that is not working properly.
- We are very supportive of students putting together calibration groups to, e.g., regularly calibrate all of a type of transducer used by your group. The Shop will gladly help you do this.
- The Shop will include last calibration date with their inventory.

6. Manuals, Web Sites and Support Information

- Most equipment comes with manuals. If possible, order another set of manuals, or download from the web, or photocopy original. **Provide the Shop with a copy**. There should always be a copy of the manual in the shop. If manuals are lost, you may copy the Shop's copy, but immediately return the Shop copy (secretarial staff can help you with copying).
- If you find web sites with information that you found useful when learning about the equipment, make a note of them on the manual associated with the instrumentation. Similarly, note down names and contact information of people that you found at the instrument manufacturer's company who were helpful.

7. Equipment Software and Software Upgrades

You **must have a license** to use software and/or show proof of purchase. Illegal downloading will result in severe penalties. ITAP keeps tabs on this type of activity, be warned.

- First check with the Shop (who may refer you to Mike Logan, ME Shop supervisor) on Purdue protocols for software installation. It may be OK to load it yourself, but check first. The Herrick and ME Shop will be able to alert you to any potential incompatibility with other software.
- For instrumentation-related software, we keep a **log of software installations and upgrades in the Shop**. When this involves disks, if possible, make a copy and let the originals reside in the Shop. If reinstallation is a regular need, the shop needs a placeholder for the software with information on the location of the disks. Clearly label the disks to identify the hardware associated with the software—this will require hardware serial numbers because there are often multiple versions of particular hardware.

8. Ordering New Equipment

When professors write research grants they include funds for new equipment and repair/calibration to help maintain and expand the pool of instrumentation available to Herrick researchers. While the instrumentation will have relevance to that research project, we purchase instrumentation to complement and improve our current pool of equipment. We do not want to waste money by purchasing instrumentation we already have. **ALWAYS check with the Shop before purchasing new instrumentation** to avoid wasting valuable resources. When you fill out the form to order the new equipment, it needs to be signed by someone from the shop. Even when you do this electronically, Donna or Judy and the other business office people will want to see a Shop person’s signature..

MY EQUIPMENT LIST

Your Name | Major Professor | Office Location

Phone for easy Contact | Email

Locker Location & Key #

Date Checked Out	Date Checked Back	Description including Type Number	Serial Number	Replacement Cost Estimate

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