

Appendix

A

Safety Manual

I. Responsibilities

Faculty

Safety is a Fundamental Responsibility of all Laboratory Users

St. Mary's College faculty are responsible for instructing students and other laboratory workers about safe procedures, and for setting good examples by their own laboratory behavior. Laboratory instructors should obtain MSDSs (*see below*) for substances with particular hazards, and should make them available to those who work in their laboratories. The faculty also have some responsibility for ensuring that students actually understand and practice laboratory safety. Some ways in which they can carry out this responsibility might include:

- putting safety questions on tests and examinations (including practicals)
- observing students' behavior and making appropriate comments
- inspecting the laboratory spaces periodically
- ejecting recalcitrant offenders from the laboratory

Students

The primary responsibility for safe laboratory practices unavoidably rests with the individual laboratory practitioners: the students. Students must follow the procedures as they are instructed, understand the rules and the reasons for them, and pass examinations on safety procedures.

Visitors and others

Obviously, it is not a good practice to have people in the laboratory who are unfamiliar with lab safety practices. When visitors must be present (for example, when a student would otherwise be alone in the lab), their hosts should instruct visitors about the most basic safety practices (*e.g.*, proper clothing, locations of telephones and exits) and ask them not to participate in activities that might expose them to hazards.

Right to know and MSDSs

The federal "right to know" law requires employers to disclose the possible dangers involved in handling hazardous materials. These hazards, and proper handling measures to reduce them, are outlined in Material Safety Data Sheets or MSDSs. MSDSs for all substances that a worker might contact must, by law, be available in a readily accessible place, and workers must be allowed time to read them. This law does not apply to students taking classes or doing research because they are not employees of the College (it does, obviously, apply to student workers), but we have elected to make MSDSs available to students anyway. The MSDSs are available in the central stockroom, Room 116, on the first floor, west wing, of Schaefer Hall.

Appendix K

There is a sample MSDS at the end of this section of the Safety Manual. Below is a brief description of each of the parts of the sheet:

Product name, manufacturer's address and emergency phone number.

Hazardous ingredients, common name(s) and any synonyms or other ways of designating the product. The only time this section will be blank is when the product is protected as a trade secret (hazards and safety measures would of course still be listed).

Health hazard data. These are data on potential modes of physical entry, acute and chronic effects of exposure, signs and symptoms, first aid, and carcinogenic, mutagenic or other specific hazards.

Normal physical and chemical characteristics, such as normal appearance and odor, boiling/vaporization and melting points, solubilities, specific gravity and density.

Fire and explosion hazard data. This includes the product's flash point (if it has one), ignition data, and special requirements for extinguishing fires.

Reactivity data. This includes stability, incompatibilities, hazardous decomposition products or byproducts, hazardous polymerization reactions, and any conditions to avoid.

Precautions for safe handling and use of the product, including all safe storage and disposal precautions and information.

Measures for self protection, such as gloves and other safety clothing, respirators and ventilation requirements, eye protection, and any other hygiene recommendations.

We will try to put some of the information from the MSDSs in laboratory instructions or provide the MSDSs themselves when a laboratory exercise uses chemicals with particularly dangerous or unusual safety-related properties (*e.g.*, high flammability, toxicity), and the instructor will usually emphasize the proper precautions. However, the fundamental responsibility for knowing the safety-related properties of laboratory materials is the user's. Such properties are always fair game for examination questions! Bottom line: **Read the MSDSs.**

There are special federal and state regulations relating to the use of living animals (especially mammals), human subjects (other than one's self), radioactive substances, and some other materials and procedures. Students may not do any of these procedures without first discussing the matter thoroughly with, and obtaining explicit permission from, a faculty member. For information only, we summarize a few of these regulations in part V, Special Safety Situations; the summary is not adequately detailed to use as a guide to proper procedures.

Faculty and lab instructors may provide additional safety guidelines or instructions in their syllabi, or as written or oral instructions presented in the laboratory. Students are responsible for understanding and following the safety guidelines recommended by their instructor.

General requirements for personal and laboratory safety.

Eating and drinking: Do not eat or drink in laboratory work areas. Handling food from bench to mouth is a route of exposure for bacteria and certain toxic materials. Prepare solutions ingested for physiology laboratories in virgin glassware and plasticware. Food is not permitted

Special Regulations

II. Working in the Laboratory

A. Proper laboratory practices

in laboratory refrigerators, ice chests, cold rooms or technical work areas.

Smoking: There is no smoking allowed inside Schaefer Hall.

Cosmetics: Application of cosmetics in the laboratory work area is prohibited.

Contact Lenses and Face Protection: Contact lenses, especially the soft ones, will absorb certain solvents and constitute a hazard in splashes or spills since they offer no protection from a splash and may concentrate caustic material against the cornea or prevent tears from washing a caustic away. You are strongly advised not to wear contacts in the laboratory. Wear face shields or eye protectors when handling caustic materials.

Clothing: Confine loose clothing in the laboratory. If it is worn, it must be covered by a lab coat. Clothing that covers most of your body (i.e., pants instead of shorts) is preferable. Shirts are required. Gloves, goggles, or safety glasses are recommended.

Shoes: Wear shoes at all times in the laboratory and throughout the science building. Ideally, shoes should be comfortable, rubber soled, and cover the entire foot (i.e., sandals or shoes with open toes are not recommended).

Hair: Secure your hair back and off your shoulders to prevent it from coming into contact with contaminated materials, surfaces, or Bunsen burners.

Hand Washing: Wash your hands frequently, and always wash them before leaving the laboratory.

Mouth Pipetting: **Never** mouth pipette!

B. Laboratory Etiquette

- 1. The laboratory as a workplace**—A teaching or research laboratory is an exciting and potentially dangerous place. Students working in the laboratory need to act responsibly and safely at all times. Throwing objects, using wash bottles as squirt guns or any physical horseplay will not be tolerated. Any student found disregarding general lab rules or the safety of others will be asked to leave.
- 2. Housekeeping**—Laboratory work areas should be kept clean and free from obstructions. Cleanup should follow the completion of any lab exercise. Leaving spilled unidentified chemicals in any form on lab bench surfaces poses an especially dangerous hazard to those who will use that space after you. Deposit wastes in appropriate receptacles. If you don't know how to dispose of them, you shouldn't be using them. Please check with your lab instructor or manual for appropriate guidelines for clean up and disposal of lab materials. Clean up spilled chemicals immediately and dispose of them properly. Refer to section III of this manual for further information.
- 3. Glassware**—Do not use broken or chipped glassware. Dispose of broken glassware only in specially marked separate containers. Disposal of broken glass along with paper in the trash bins is especially hazardous to the custodial staff as well as others. Do not leave pipettes sticking out of bottles, flasks or beakers where they

Appendix K

may be bumped or pushed over. Do not attempt to remove stoppers from glass tubing by forcing them through if they appear to be stuck. All hot glass, heated containers or items from the autoclave should be handled with special gloves. Do not heat sealed containers

- 4. Razor blades, needles and other sharp objects**—Any sharp objects other than glass should be disposed of in specially marked “sharps” containers. Never place these items in laboratory trash bins.

Use the protective devices appropriate to your task.

- 1. Eye protection**—Wear glasses or goggles when working with most lab liquids, but especially when a splash could injure or infect your eye. Use EXTRA caution with:
 - highly caustic solutions—strong acids and bases
 - highly concentrated solutions
 - organic solvents—watch out for contact lenses which can absorb many chemicals
 - UV illumination—use UV blocking eye wear
 - animal body fluids or tissues
 - bio-hazardous material—bacteria, viruses
 - liquid nitrogen—use a full face shield
 - toxic powders that may become airborne (*e.g.*, when weighed)
- 2. Gloves**—Wear gloves to protect your hands if something could be absorbed through your skin, especially if materials are:
 - caustic
 - concentrated
 - toxic
 - readily absorbed through the skin (*e.g.*, organic chemicals)
 - radioactive
 - hot or cold
 - or could leave a long-lasting odor or discoloration even if they're harmlessChoose the correct glove for the type of materials you are handling. Glove compatibility charts are posted in most laboratories. Students should consult their lab instructor if they are unsure of what personal protective equipment should be worn.
- 3. Use a hood for volatiles**—There is a special document, posted on each fume hood, that you need to read BEFORE you use it. A good rule of thumb is to open the hood only far enough to perform your work. This creates positive air flow away from you and protects your body from possible flying things.
- 4. Use all the protective devices available for your task**—Do not attempt to override or defeat:
 - alarms for over/under temperature, maximum voltage, low volume, *etc.*
 - circuit breakers that shut down equipment when the covers are removed
 - door interlocks on centrifuges or autoclaves

Reagent containers, microfuge tubes, flasks, *etc.* must be labeled with content, concentration, date received or prepared, storage requirements, and your name. Labeling for any hazardous materials should also in-

III. Inside the Laboratory

A. Protective Devices

B. Labeling

clude caution required, type of hazard, precautions for use, and instructions in case of accident.

C. Special hazards

There are special hazards associated with some special procedures. Be thoroughly trained before you attempt to use:

- centrifuges, especially high speed (see Section VI (A))
- autoclaves- do not use without supervision (see section IV ©)
- bottles of compressed gas- if used improperly they can act like bombs or torpedoes.
- electrophoresis equipment- high voltage and the danger of explosion if used improperly
- body fluids (blood, urine, tissues)
- any equipment that employs high pressure or high/low temperature

Be alert—READ DIRECTIONS AND LABELS Don't mix chemicals without prior knowledge and approval of your lab supervisor.

D. Safety Equipment

Know the location of the nearest exit and safety equipment wherever you are working.

- 1. Fire extinguishers and telephones** are located in all hallways and teaching and research labs. Emergency phones and fire alarms located in the hallways connect directly to Public Safety.
- 2. Emergency eyewashes** are located near at least one sink in each lab and prep area. In addition, floor-mounted eyewashes are also located in all teaching labs, except for the Plant Biology Laboratory, Room 108.
- 3. Emergency showers** are found on the second floor of the biology wing in the Molecular Genetics Lab (Room 209) and the Radioisotope Lab (Room 211). In addition, each sink-mounted eyewash can be used as a shower to flush the skin in the event of a chemical spill, if an emergency shower is not nearby. These eyewashes extend up to 5-feet from the sink by means of a flexible hose.
- 4. First Aid Kits** are found in most prep areas and some teaching labs. A burn kit is located in the Molecular Genetics Lab, Room 209.
- 5. Fire Blankets** are located in the Central Stockroom (116), the Ecology/Geology Lab (112), the General Biology Lab (221), and the Molecular Genetics Lab (209).
- 6. Spill Control:** An emergency spill cart is located inside the stockroom (room 116), near the chemical stockroom. The cart is equipped with everything needed to identify, contain, neutralize and absorb chemical spills. Additional spill control materials are located in prep areas and some teaching labs. For mercury spills, use a mercury spill kit to contain the spill. NOTE: Only trained personnel should respond to a hazardous chemical spill.

E. Emergency Procedures

Know the appropriate actions to take in emergencies.

For emergency situations requiring outside assistance, call:

Fire, spills, gas leaks	9-911
Medical emergencies	9-911

Appendix K

Police **9-911** **For Campus Public Safety, call 4911.**

1. Chemical spills
 - a. Alert your instructor and all people in the lab about the spill.
 - b. You should know, before you start working, if the chemical you're using is likely to be an extreme hazard- *i.e.*, fumes that could catch fire or be an inhalation hazard. **GET OUT IF THERE IS DANGER, CLOSE THE DOOR AND REQUEST OUTSIDE EMERGENCY ASSISTANCE. CALL 9-911, THEN PUBLIC SAFETY (X4911) FROM A SAFE LOCATION.**
 - c. If the chemical is flammable, turn off ignition or heat sources, Bunsen burners, switches on nearby equipment, *etc.*, if at all possible.
 - d. Avoid breathing the vapors.
 - e. **DO NOT ATTEMPT TO CLEAN UP A LARGE SPILL UNLESS YOU ARE TRAINED TO DO SO.**
 - f. For small spills, put on protective clothing, and surround the spill with absorbent paper or absorbent spill control materials. (Spill control materials are found in some prep areas and on the spill cart located inside the Central Stockroom (SH116).
 - g. Turn on ventilation if it is safe to do so.
2. Most fire danger is from fumes, not burns
 - a. Notify laboratory instructor or supervisor immediately and pull the nearest building evacuation alarm.
 - b. **DO NOT ATTEMPT TO FIGHT A FIRE UNLESS YOU ARE TRAINED TO DO SO!**
 - c. Leave the room, closing the door behind you, then from a SAFE location, call for outside assistance by calling 9-911, then call Public Safety (X4911).
3. Medical emergencies and injuries—For serious or life-threatening medical emergencies, call 9-911 for outside medical assistance, then call x 4911 for Public Safety.
 - a. Cuts- If little bleeding occurs, rinse the wound thoroughly and apply dressing and bandage. Notify lab personnel of the incident, including possible contaminant of wound. **IF THE CUT IS LARGE OR DEEP AND/OR BLEEDING PROFUSELY**, apply pressure and seek medical aid immediately. For less severe accidents call x 4289 to reach the campus health center in Chance Hall.
 - b. Burns- If it's from something hot and it's smaller than a nickel, wash it in cool water and apply ointment. A burn kit is located in the Molecular/Genetics Lab (room 209). If it's large and blistered, seek medical aid.

If you have a large burn or your clothing is ablaze or the burn is on your face (eyes, mouth, nose)- get under the emergency shower or eye wash and call for help.

If it is a small chemical burn on the extremities, rinse copiously with cool water and seek medical aid.

- c. Injuries from sharps (needles, scalpels, *etc.*) Treat these like cuts but make sure you know what was in the needle or on the scalpel and report to the lab supervisor.
- d. Accidental ingestion of chemical- NEVER PIPETTE BY MOUTH, NEVER EAT IN THE LAB. If something is inadvertently ingested, call the lab supervisor for help, locate the MATERIAL SAFETY DATA SHEET (MSDS) to determine appropriate action to take (*e.g.*, should you: induce vomiting?, drink lots of water?, call poison control center?)

IV. After the Laboratory

A. General Clean up

1. **Wash hands** before leaving the laboratory, and before eating or smoking.
2. **Clean up** your work area before you leave the laboratory.
 - a. Dispose of any accumulated wastes properly. Place used razor blades, needles, *etc.* in the sharps container and broken glass in the broken glass box provided in each lab. Discarded glassware should be free of chemical contamination.
 - b. Properly label and store any chemicals and equipment still in use. Minimize clutter.
 - c. All reagent containers, microfuge tubes, *etc.* should be labeled with contents, concentration, date prepared, storage requirements, and your name, before you leave the room. Label any hazardous materials with the caution required, type of hazard, precautions for use, and instructions in case of an accident.
 - d. Clean up any clutter or spilled liquid from the floor to prevent slipping and tripping hazards.
 - e. Wash dirty glassware promptly; it should not accumulate in the sink.
3. Secure chemicals, equipment and supplies:
 - a. Chemicals:
 - i. Before leaving the lab, return items to the proper storage location. (*e.g.*, Are there any chemicals, media, *etc.* that need to be refrigerated or frozen?)
 - ii. Return empty chemical stock bottles to the designated location outside the chemical stockroom, so that replacements can be ordered.
 - b. Equipment:
 - i. Clean off balances, rinse centrifuge rotors in distilled water and dry, set pH meters to stand by and check levels of electrode soaking and filling solutions.
 - ii. Turn off power on equipment you've been using unless otherwise directed by your instructor or lab supervisor. Some equipment should not be turned on and off if it will be used later in the day. Check with your instructor. Make sure gas lines, ovens, power supplies, spectrophotometers, water baths, and Bunsen burners are turned off or properly adjusted before leaving the room.
 - iii. Take precautions with equipment running unattended for an extended period of time. Temperature, pressure, level-control, and flow shutoffs should monitor the experiment. Hoses should be secured. Emergency instructions should be readily available. Label any experiments in progress with your name, how long

Appendix K

the equipment will be running, and any hazards associated with the materials being used.

- iv Fill out equipment logs. Report any problems or hazards immediately.

4. Reporting Problems—Report instrumentation problems, potential electrical hazards, and low chemical stocks to the Biology Technician (SH116).

Before you dispose of anything, ask yourself: “Where does the drain go? Where does the trash go? Will anyone be hurt if they handle this trash bag?”

B. General Disposal Guidelines

CAN YOU PUT IT DOWN THE DRAIN?

NO, if it is

- an organic solvent (even ethanol, unless it’s less than 10%)
- toxic
- insoluble
- metal
- flammable
- radioactive
- corrosive
- animal waste treated with preservatives or other chemicals

At the conclusion of lab exercises, unpreserved animals such as crabs, frogs, and sponges should be disposed of in the dumpster near the loading dock. Animal carcasses can be stored in sealed plastic bags in the freezer temporarily.

YES if it is

- readily biodegradable (*e.g.*, sucrose solution, buffer without other chemicals, saline solution)
- dilute acids and bases between pH 4.0 and pH 10.0 (Concentrated acids and bases must be neutralized first)
-

CAN YOU PUT IT IN THE TRASH?

NO if it is :

- contaminated biological waste
- sharp (needles, scalpels, broken glass or metal—dispose of in labeled container)
- radioactive
- leaking
- preserved or unpreserved animals

YES, if it is uncontaminated:

- paper
- intact metal cans
- plastic (disposable pipettes, pipette tips, *etc.*)
- unpreserved or untreated plant material or soil (compost if possible)

WHEN IN DOUBT, ASK SOMEONE. RECYCLE IF POSSIBLE.

1. Disposal of Chemical Wastes—Be aware of how to handle chemical wastes generated in the laboratory. Chemicals

C. Specific Disposal Procedures

must be disposed of in a manner consistent with federal and state regulations.

- a. **Disposal**—Consult the chemical label, material safety data sheet (MSDS), and/or other references before disposing of any chemicals. Do not pour chemicals down the drain or place them in the trash before consulting the appropriate references to determine that they are non-hazardous materials. Reagents should never be returned to the original container, even if there is excess left after an experiment is completed, as this practice can contaminate the entire stock.
- b. **Hazardous waste**—Containers must be labeled with the contents and concentration, associated hazards and delivered to the designated area in the waste storage room (122) near the loading dock. Ethanol is stored alone. Wastes should not accumulate in fume hoods and laboratories.
- c. **An inventory** of chemical wastes will be maintained by the Biology Laboratory Technician. Accumulated hazardous wastes will be removed and disposed of off-site by a waste contractor.

2. Disposal of Biological Wastes:

All bacteria, viruses and fungi as well as blood and blood products should be considered potentially hazardous, and autoclaved or sterilized before disposal. Sterilize or autoclave flasks, pipettes, pipette tips, *etc.* and any other materials, or equipment which have come in contact with these biological materials. Maintain stock solutions of suitable disinfectants in laboratories.

a. Labeling, sterilization and disposal:

- i. Label infectious substances, work and storage areas with the biohazard warning symbol. Individuals are responsible for maintaining the proper labeling while storing, handling, and disposing of biological materials.
- ii. Wear personal protective equipment such as gloves and a lab coat when working with and disposing of used materials.
- iii. Place contaminated pipettes in a pipette soaking jar with enough disinfectant to provide full immersion. Place inoculated petri plates, pipette tips and other disposable materials in autoclave bags.
- iv. Autoclaving:
 - a. Apply autoclave indicator tape to the container, mark it “KILL”, and placed in the area designated “TO BE AUTOCLAVED”.
 - b. Autoclave at 15 psi for a minimum of 15 minutes. Do not use the autoclave unless you have received training.
 - c. After autoclaving, place sterilized materials in the “TO BE CLEANED” area or in the trash can provided for autoclaved waste.

Appendix K

- d. NOTE: NO INFECTIOUS SUBSTANCES ARE TO ENTER THE BUILDING DRAINAGE SYSTEM OR TRASH WITHOUT PRIOR STERILIZATION.
- b. **Clean up**
 - i. Floors, lab benches and other surfaces where infectious substances are handled are to be disinfected regularly with a suitable germicide such as bleach or Lysol. Before and after plating, pipetting, centrifuging, and similar operations, disinfect the lab bench or surrounding area.
 - ii. Spills: If a spill occurs, promptly disinfect the area and use an appropriate disposal procedure for materials used in cleanup. Wear the appropriate personal protective equipment, including disposable gloves, when handling a biological spill. Report spills to your lab instructor.

There are a number of procedures that have special safety requirements. Some of these are listed below, with a brief summary of the ways in which they're special.

All biology students will spend some time running samples in centrifuges during their career here at St. Mary's, and so it is easy to get overly comfortable with these potentially hazardous machines. Therefore, make a mental check-list from the following:

1. **Always** balance samples using a double pan balance. Different kinds of centrifuges have different balancing requirements or loading patterns: check the instructions for the one you are using. This is particularly important when many students are running their samples simultaneously. It's a good idea to have one and only one student balance and load the centrifuge.
2. **Clean up after your run.** Despite their massive, rugged appearance, centrifuge heads are quite delicate. They pit easily when drops of chemical solutions are allowed to remain on them, and pitting tends to unbalance them.
3. **Be very delicate** with the head. Dropping a centrifuge head onto a hard surface from a height of only six inches can ruin it.
4. **Be certain** that the head is properly seated on the spindle. If it's hard to tighten it down, there's probably something wrong that extra force will only make worse.

1. **All radiation of wavelengths** shorter than 350 nm should be considered dangerous.
2. **Wear protective** goggles, face shields and clothing. Warning signs should be posted wherever UV light sources are used. Keep a log of UV light source use.

1. **Vacuum operations** include suction filtration, rotary evaporation, and vacuum distillation. Check glass equipment for visible defects. Only use glassware with suitable wall thickness. Inspect tubing before use.
2. **Shield glass equipment** and wear safety goggles.

V. Special Safety Situations

A. Centrifuges

B. Ultraviolet Light

C. Vacuum Operations

3. When working with a vacuum pump, use a cold trap to protect pump oil, and vent the pump into a fume hood whenever possible.

4. Pumps with belt drives should also have belt guards to prevent hands or loose clothing from being caught in the belt pulley.

D. Use of Cryogenic Liquids

1. Wear safety glasses and, if necessary, a face shield and cryogenic gloves when working with cryogenic liquids.

2. Do not use glass Dewars for filling or pouring liquid nitrogen unless they are taped or wrapped to prevent flying pieces in case of implosion. Metal or plastic Dewars are preferable.

3. Use vented storage systems with dispensers designed for cryogenic materials.

E. Use of Animals

As biologists, we respect life while we try to understand it. Most biologists believe that increasing humankind's knowledge of itself and its world, and the concomitant need for biological instruction, justify the occasional use of living or unnaturally killed animals. No biologist should destroy life wantonly or without due consideration of the trade-offs involved.

Feelings and regulations about animal use become more severe as the animals become phylogenetically closer to *Homo sapiens*. Few people find it objectionable when scientists dissect living *Crassostrea* or *Calinectes*; more become upset when the subject is *Rattus*; biological work on primates is effectively restricted to people working on diseases of immense human importance.

There are special rules and regulations about keeping, handling, and disposing of many kinds of animals, particularly mammals. These rules specify the types and capacity of cages, cleaning and inspection schedules, special ventilation requirements, and so on. If you work with mammals, your instructor will discuss the appropriate procedures with you.

Any experimentation with human subjects, except yourself, regardless of how harmless it seems, must be cleared by the Human Subjects Panel at the College.

F. Radioactive Materials

Radioactive materials come under perhaps the most restrictive set of legal requirements in the entire health and safety area. The hazards of radioactive materials are particularly insidious: exposure can be deadly but usually produces no immediate symptoms, the materials often do not necessarily look smell, or feel hazardous, and the hazards can persist for extremely long periods of time (thousands of years, in some cases). No student should use radioactive materials without specific, explicit instructions from the Radiation Safety Officer or a faculty member with radioisotope training.

Some of the precautions usually observed with radioactive materials include:

- Use of radiation barriers. Sometimes the materials must be manipulated mechanically, with humans isolated from them by heavy lead blocks. More frequently in biological procedures a barrier of

Appendix K

Plexiglas is sufficient. Requirements differ depending on the type and concentration of the radioactive species.

- Restriction of handling to particular buildings and rooms. In Schaefer Hall, we may have radioactive material only in Room 211. Furthermore, material not currently in use must be kept in specific locked storage areas.
- Periodic monitoring. A designated responsible person must make periodic wipe tests on surfaces used with radioactive materials. The results of the wiping must be checked for radioactivity.
- Extensive legal reporting requirements. All material must be tracked to the milligram, and its eventual fate must be recorded and reported to federal and state agencies.
- Highly restricted disposal. Radioactive materials must be disposed of very carefully, usually being transported to some centralized regional or national waste storage facility, to remain until they decay to harmless levels of radioactivity.
- Prevention of personal contamination. While most radioactive materials used in biology are relatively harmless in their containers or in Petri dishes, they can be deadly if ingested or inhaled. Workers therefore almost always wear gloves and other protective clothing (which often must remain in the radioactive work area), work in hoods, and frequently wear badges or rings that can be “read” by commercial facilities to determine whether the person has been exposed.

At this writing, radiation safety is the legal responsibility of the College’s Radiation Safety Officer, Dr. Linda Coughlin, a member of the Department of Biology who is the principal faculty user and technical contact.

The College’s policies on access to Schaefer Hall reflect a complex set of changing circumstances, including among others permitting students to work on independent projects, providing good places to study, protecting the physical safety of students, protecting College property, and maintaining an atmosphere of free intellectual inquiry. At this writing, Schaefer Hall is completely open and unlocked during normal working hours, and allows holders of valid student or faculty ID cards access until midnight. After midnight, no new access is permitted and students are encouraged to leave (even St. Mary’s College students have to sleep), although people will not generally be evicted if they are already inside.

Please do not try to circumvent these access policies. They are not designed to keep any constituency—students, faculty, staff, community—from using Schaefer Hall to the fullest. Rather, they are designed to make a rational compromise between access and security. Please do not give out the combinations of combination locks, pass around or duplicate any keys you have, lend your ID card to anyone else, prop open doors, and so on.

If someone you don’t know tries to get in (by following you closely, for example, or by tapping on a window and looking forlorn), you’re confronted with a diplomatic problem. Do you alienate someone and follow the rules, or do you allow yourself to be manipulated and break them? Follow the rules. If the person in question is supposed to be inside, she’ll have an ID card and can get in herself!

VI. Building Access and Personal Security

A. Working alone in the lab is not recommended.

B. Don’t Circumvent Access Policies

**C. Be Aware of Basic
Personal Safety Precautions**

Schaefer Hall is a public building, with hundreds of people walking in and out every day. It is not a pristine haven from the real world, but it isn't a hotbed of violent crime either. Take reasonable precautions: don't leave backpacks or other valuables in unlocked areas where you can't see them. Don't work alone, especially at night (be aware that in a lighted room at night, unless you pull the shades down, you are effectively on display to all who might walk by). There are emergency telephones, hooked directly to Public Safety, in all major hallways of Schaefer Hall; don't hesitate to use them if you feel threatened.