School of Natural Sciences and Mathematics
Laboratory Safety Regulations

Campus Operations during COVID-19:

Stockton plans to operate the Fall 2021 semester as a predominantly face-to-face academic experience. There are extensive safety protocols in place at Stockton. These protocols have been put in place in cooperation with Risk Management, to ensure your safety and reduce the spread of Covid-19, while adhering to public health guidelines at the county, state, and federal level. Please refer to the webpage for up to date information https://stockton.edu/emergency- management/coronavirus.html

Vaccination:

One of the most important steps we can all take to keep ourselves and each other safe is to get vaccinated. Students are the largest demographic at 85% of the Stockton community. A vaccinated student body offers the best chance for herd immunity subject to exemptions for valid and documented medical or religious reasons. ***Vaccination is required of all students both undergraduate and graduate.*** *Complete vaccination documentation must be submitted to student health services at least 2 weeks prior to your arrival on campus but no later than August 1, 2021.*

Personal Protective Equipment:

The University requires unvaccinated students, employees and visitors to wear face coverings while indoor on campus. Face coverings/ masks must be worn by those that have failed to provide proof of vaccination or an exemption to health services/ Human resources. The face masks must cover the nose and mouth. Individuals who have underlying health conditions which prevent the wearing of such coverings will need to contact Human Resources (employees) or the Wellness Center (students) to request an exception**. If unvaccinated, you will not be admitted to the Laboratory facilities without a mask or a documented exception.**

Cleaning and Sanitation:

Stockton has implemented heightened cleaning protocols to ensure the health and well-being of our community. We will disinfect common areas frequently and provide complimentary sanitization products throughout campus. Students, faculty and staff should use gloves in the laboratories and change them if they become contaminated. Students, faculty and staff **are responsible for disinfecting shared equipment and borrowed goggles/safety glasses.** Students, faculty and staff are also responsible for wiping down the benchtops and hoods that they have used. Sanitation wipes will be provided for this purpose. If you need more wipes, contact Custodial. There are hand sanitizing dispensers located throughout common areas.

Personal hygiene:

As always required, after removing gloves and before leaving the laboratories, students, faculty and staff must wash their hands for 20 seconds, with soap and water and dry them. **It is especially important to keep hands away from face and eyes. If required to wear a mask, do not to handle your mask other than by straps. Be mindful of what you touch even with gloves on. Do not wear gloves outside of laboratories!**

Self Health Monitoring:

If you are ill, stay home! If you are a student and are not feeling well, contact the wellness center immediately wellctr@stockton.edu. The success of our plan depends on everyone doing their part to help protect themselves and others on campus.

If you have been tested for COVID-19 in any jurisdiction, please contact Stockton at publicsafety@stockton.edu as soon as possible. You do not need to wait for results. This will greatly assist our efforts in tracking the people in our community who have been impacted.

Students with questions about COVID-19 procedures should contact the Dean of Students for additional information.

Introduction

Everyone, including faculty, staff, students and visitors are responsible for safety and accident prevention when present in the Stockton University, School of Natural Sciences and Mathematics (NAMS) Academic Laboratories and Field Facilities. It is required that everyone abide by all ***NAMS safety regulations***, ***NAMS Standard Operating Procedures (SOPs)***, as well as, ***Stockton University Policies and Procedures*** when you are present in any of the laboratory buildings or field facilities. An electronic copy of NAMS regulations can be accessed on the computer in every teaching lab, as well as, a hard copy found in the bin by the computer. NAMS SOPs are contained within the ***Chemical Hygiene Plan*** which can be found in each prep room in a labeled binder, USC1-111 and AS210. University policies and procedures can be found by accessing the following link https://stockton.edu/policy-procedure/ If you are unsure about anything, *do not proceed*. Ask for assistance from your instructor, a laboratory staff member, Assistant Director or Executive Director of Academic Laboratories and Field Facilities.

Laboratories are equipped with eyewash stations, emergency showers, fume hoods, biosafety cabinets, fire extinguishers, fire blankets and other safety equipment. Everyone using the laboratory is responsible to familiarize themselves with the proper operation and use of this safety equipment. ***Laboratory instructors will review how to properly operate ALL safety equipment in the lab, on the first day of lab*.** Laboratory Instructors are responsible to ensure their activities are compatible with any other activities occurring at the same time in the laboratory. Any questions about what constitutes compatible activities in a laboratory, should be directed to the Assistant Director or Executive Director of Academic Laboratories and Field Facilities.

Prior to the start of the semester, students will be sent a copy of the NAMS Lab Safety regulations, attached to a Qualtrics survey, via their Stockton student email account. *This survey requires an electronic signature attesting that the student has read and agrees to comply with the NAMS Lab Safety regulations. This is a requirement of Stockton Risk Management and students will not be admitted to lab unless this has been completed.* Responses to the survey will be reviewed prior to the start of labs. **There will be a QR code posted with the survey if for some reason they were unable to complete the survey, or they have just added the class.** Teaching assistants are responsible for reading the safety regulations and completing the survey as well. **Copies of the lab Safety Regulations will be available on Blackboard, on the lab computer and a hard copy in each lab.** Hard copies of previous years completed logs are filed in USC2 and scanned copies are stored electronically for the required retention time.

Faculty, including adjuncts, staff and student workers (including research students) are required to complete online training once per year via Blackboard and complete the Qualtrics survey. Note that this is in addition to the survey for the lab safety regulations! ***Access to labs will not be granted until this is completed.*** Questions regarding training requirements or access should be directed to the Assistant Director of Academic Laboratories andField Facilities or the Executive Director, *not the NAMS office.*

Unsupervised access to the Academic Laboratories and Field Facilities is not permitted. ***All visitors must report to the NAMS Dean's Suite, USC 240 to arrange for authorized access with qualified personnel. (see Authorized visitation below). Students are not permitted to work in any NAMS laboratory facilities without direct faculty supervision.*** This includes the prep rooms, faculty research labs, instrument rooms and chemical storage areas. There may be situations in which the faculty supervisor can arrange with the NAMS Lab Executive Director to allow student access to complete projects. *This must be arranged ahead of time.* The faculty supervisor will be informed by the Executive Director, what activities are acceptable. The visitor's health pledge must also be submitted.

Students who have been granted access, will be informed BY THEIR SUPERVISING FACULTY of acceptable activities that can take place during scheduled hours, while also abiding by the applicable safety regulations. *At no time, is a staff member to assume supervision of a student working in a lab under the above agreement.* The supervising faculty is responsible for providing DIRECT SUPERVISION. The laboratory staff and faculty have the authority to expel any student from the laboratory or halt any activity taking place in the laboratory, if a safety procedure or regulation is violated or a potential hazard exists. If you have any question regarding what direct supervision entails, see the Assistant Director or Executive Director.

These regulations apply to all NAMS Academic Laboratories and Field Facilities including those listed below:

- Biology Teaching Laboratories – Unified Science Center 1&2, Main Campus
- Chemistry/ Biochemistry Teaching Laboratories - Unified Science Center 1&2, Main Campus
- Chemical storage areas
- Environmental Science and Geology Teaching Laboratories – Arts & Sciences Building, Main Campus
- Faculty Research Laboratories located in USC 1&2, MFS, HSC1 and A&S, Main Campus
- Instrument Rooms
- Marine Science and Environmental Science Teaching Laboratories - Marine Science and Environmental Field Station (MFS), Port Republic, NJ
- Physics Laboratories - Unified Science Center 2, Main Campus
- Sustainability Teaching Laboratories- Health Sciences Building, Main Campus

NAMS complies with all applicable local, state and federal regulations including the following:

- Occupational Safety and Health Association (OSHA) Laboratory Standard https://www.osha.gov/Publications/laboratory/OSHAfactsheet-laboratory-safety-osha-lab-standard.pdf and
- Chemical Hygiene Plan https://www.osha.gov/Publications/laboratory/OSHAfactsheet-laboratory-safety-chemical-hygiene-plan.pdf
- Public Employees Occupational Safety and Health (PEOSH) Hazard Communication Standard, https://www.nj.gov/health/workplacehealthandsafety/peosh/peosh-health-standards/hazcom.shtml
- The NJ Worker and Community Right to Know Act, https://www.nj.gov/health/workplacehealthandsafety/right-to-know/
- Environmental Protection Agency (EPA)/ NJ Department of Environmental Protection (DEP) Hazardous Waste Regulations, https://www.nj.gov/dep/enforcement/hw.html
- The Resource Conservation and Recovery Act (RCRA) https://www.epa.gov/rcra
- Globally Harmonized System (GHS) of Classification and Labeling of Chemicals, https://www.osha.gov/dsg/hazcom/global.html
- OSHA OSHA's Bloodborne Pathogens standard and Federal Needlestick Safety and Prevention Act, https://www.osha.gov/SLTC/bloodbornepathogens/bloodborne_quickref.html
- National Institutes of Health (NIH) Guidelines for Research Involving Recombinant or Synthetic Nucleic Acid Molecules, https://osp.od.nih.gov/wpcontent/uploads/NIH_Guidelines.pdf
- Center for Disease Control (CDC) Guidelines for Biosafety in Microbiological and Biomedical Laboratories (BMBL), https://www.cdc.gov/labs/BMBL.html
- United States Department of Agriculture (USDA) Animal Welfare Act and Animal Welfare Regulations, https://www.aphis.usda.gov/animal_welfare/downloads/bluebook-ac-awa.pdf
- National Research Council (NRC) Institute for Laboratory Animal Research, (ILAR) The Guide for the Care and Use of Animals in Research, https://www.ncbi.nlm.nih.gov/books/NBK54050/pdf/Bookshelf_NBK54050.pdf
- Public Health Service (PHS) Office of Laboratory Animal Welfare (OLAW) Policy on the Humane Care and Use of Laboratory Animals, https://olaw.nih.gov/policies-laws/phs-policy.htm
- NJ Regulated Medical Waste Regulations, https://www.nj.gov/dep/dshw/rrtp/rmw.htm
- Drug Enforcement Agency, (DEA), https://www.dea.gov/controlled-substances-act

Directory

Administration

Dr. Justine Ciraolo, *Executive Director, Academic Science Laboratories & Field Facilities,* USC2
VACANT, *Assistant Director Academic Science Labs & Field Facilities*,
Steve Evert*, Associate Director of Marine Science & Environmental Field Station*

Vivarium (Animal lab)

John Rokita, *Assistant Supervisor, Academic Lab Services*, USC2
Melissa Laurino, *Animal Care Specialist*

Biology and Chemistry Teaching Lab Prep

Lester Block, *Professional Service Specialist,* USC1 and USC2
Linda Dotts, *Professional Service Specialist,* USC1, (laptops, safety)
Gina Petruzzelli*, Professional Services Specialist,* USC1 (Consumable Inventory)
Sheila Kanaley, *Professional Services Specialist, 10 Mo 75%,* USC2

Chemical Prep

Bridget O'Connell, *Professional Services Specialist, USC1*

Physics Prep, ENVL/GEOL/MATH TAs and Graders

Jeffrey Dukes, *PHYS Professional Services Specialist, 75%,* USC2

Inventory, BIOL and CHEM TAs, Deliveries

Eve Jaworski, *Professional Services Specialist,* USC1

Sustainability Farm

Rob McKeage, *Professional Services Specialist,* USC2

Instrumentation

Tom Hancharuk, *Professional Service Specialist,* A&S

A&S and USC2 Greenhouses, Environmental chambers, Microscopes

Christine Schairer, Professional Service Specialist, USC2

Marine Science Lab Prep at MFS

Elizabeth Zimmerman

Lab Mechanic

Bill Harron, F-wing

Note: Contact information for your prep person is posted in every teaching laboratory. Schedules are subject to change depending on laboratory needs. It is best to contact staff members via Stockton email. Semester schedules will be distributed to all Coordinators prior to the start of the semester.

General Health and Safety

Remember, lab safety is everyone's responsibility. Inform your instructor/supervisor of any special conditions or allergies that might affect your laboratory performance during the semester *before* the start of labs. Proper nutrition, hydration and rest are very important. Organic vapors can be particularly troublesome if inhaled. *If during the laboratory session you feel lightheaded, take a seat, if possible and immediately ask the instructor for assistance.* If you are unable to ask personally, send a fellow student or Teaching Assistant (TA) to the instructor for assistance. The student should be escorted out of the classroom away from any source of vapors. Lab staff or the Assistant Director should be notified immediately so they can assist. If medical assistance is required, the instructor should call 911 so the student can be assessed or send the student to the Wellness Center accompanied by designated student or staff. An incident report should be filled out and turned in within 24 hours to the Assistant Director (See Accidents and Incidents and Reporting Requirements below).

No vaping/smoking, eating/drinking, chewing gum, applying make-up/ lip product or storage of food/drink is permitted in any of the laboratory areas, instrument rooms, chemical storage or research laboratories.

Chemical Safety

Safety Data Sheets (SDS) for chemicals used in the laboratory are available for review in the red and white SDS binders in each teaching laboratory, research laboratory and prep room where the chemical is utilized. They are also located in all chemical storage areas. A comprehensive file of all SDSs is maintained in the Unified Science Center in USC1-111. The University central file is in H-221. A copy of the NAMS Chemical Hygiene Plan can be found in each laboratory prep area: USC1-152, 252, 352, USC2- 218, 231, 324, A&S 210, HSC-104, as well as USC1-111. *An electronic copy can be found in all teaching laboratories and can be accessed via the lab computer.*

Hazardous Chemical Waste

The individual generating the waste is responsible for disposing of it properly. Hazardous waste must be labeled properly and temporarily stored in a satellite waste accumulation area in the designated hood or cabinet area in each lab. Hazardous waste should be in an appropriate, labeled container, with a lid and secondary containment (usually a gray bin). Waste jars are stocked in each lab and prep rooms and can be requested at any time by contacting a staff member. A designated staff member will pick up the waste within the required amount of time. If you have a waste container in your research area that is full, please contact the designated NAMS laboratory staff member for pick up*. **Do not overfill** containers (3/4 full is ideal). Always properly label containers and always keep the lid on.*

Chemical Storage

Access to Chemical Storage areas are granted by prior authorization of the Executive Director of Academic Laboratories and Field Facilities only. If you need a specific chemical, contact a member of the laboratory staff. They have access to the chemical inventory system (VIS) and will locate what you need. If you empty a chemical container, remove the inventory bar code label and give it to the designated staff member or a

member of lab staff so that the item is removed from the chemical inventory. Label only! It is the user's responsibility to dispose of the empty container according to regulatory requirements. The lab staff can help ensure proper waste disposal procedures are followed. If a chemical is being temporarily moved to another location, a note must be left so that others can locate it. If a chemical is being moved permanently, please notify a staff member so that the inventory can be adjusted.

Emergency Response

While preparing to respond to an emergency, remember that *the primary goal is to protect human life and minimize injury.* Never put yourself in danger! The second goal is to minimize damage to structures or equipment.

Accidents/ Incidents

In case of any incident or accident, seek immediate assistance. The telephone number for **Campus Police is 911**. The telephone number for **Health Services is 4701**. The **Director** can be reached at **4490**. Health Services/ Wellness Center is in the West Quad Building on the Main Campus, Room108. *If a student is injured in any way, she/he/they must be checked by medical personnel.* If the student is sent to Health Services, *she/he/they* must always be accompanied by the instructor, member of staff or their designee.

Wellness Center
If you are sick and would like to be seen by Stockton's health professionals, please contact Student Health Services **in advance of visiting the office**. wellctr@stockton.edu
(609) 652-4701 (Galloway)
(609) 345-6000 (Atlantic City)

Reporting Requirements

All accidents or incidents involving students, faculty or staff must be reported to the Assistant Director and Executive Director of Academic Laboratories, no matter how minor it seems. An *Incident Report Form* must be completed with all required information *within 24 hours of the occurrence*. Forms can be found in each teaching laboratory in a labeled folder. See a lab staff member or the Assistant Director if you need more. The completed forms should be submitted directly to a staff member in USC-240.

Fire

There are fire alarms located on each floor that should be activated in case of fire. Evacuation routes are posted in each building and you should familiarize yourself with them *before* an emergency occurs. *If the fire alarm sounds, you must evacuate the building immediately and assemble at the predesignated area away from the building.* There are no exceptions. Turn off/ unplug all sources of heat and flame and exit the building using the stairs. Be aware, emergency doors will close automatically when alarm is activated. ***Do not use elevators.*** *You must remain in the assembly area until granted clearance by public safety to reenter the building.*

If there is a small fire, the fire extinguisher can be used. Each lab and research area have fireproof trashcans. In case of a fire in the trash can, utilize the fire blanket to cover the top so that oxygen is eliminated. **It is still important to evacuate the area.** Notify a Laboratory Staff member immediately. If someone is on fire, immediately instruct them to stop, drop and roll while snuffing out flames with the fire blanket or similar. Never use a fire blanket on someone that is standing.

Chemical Spills

If there is a major or complicated chemical spill (defined below) evacuate the area and call 911 immediately. A professional emergency response team will be contacted by the University, through the coordinated efforts of the Department of Risk Management, NAMS and Plant Management per Procedure File Number: 6901.

Major or complex spill:

- *A spill that also involves injury*
- *A spill of a highly toxic or flammable material requiring immediate evacuation of the area*
- *A spill in a stairwell or other high traffic area*
- *A spill that has serious potential for impact on the environment.*

Please familiarize yourself with all safety procedures on the Stockton Risk Management and Environmental Health Services (RMEHS) website, Be Prepared, Emergency Resources Guide. https://stockton.edu/be-prepared/index.html. This guide is also posted in every lab *and in hallways. Be prepared to give the location and other required information to emergency personnel when you call.* Also, please sign up for emergency text alerts via the Go Portal https://stockton.edu/alerts/ to receive text notifications in the event of an emergency.
If there is a small, uncomplicated chemical spill contact the Assistant Director or a staff member for assistance, if needed. There are spill pads available in every lab and prep room for this purpose. *Used spill pads soaked with hazardous chemicals or microbiological contaminants must be disposed of properly.* Consult a staff member for direction if you are unsure of how to clean up or dispose of a spill.

Faculty Responsibility

Faculty must familiarize themselves with all laboratory procedures, experiments and equipment *before* assigning them to students in the laboratory. Instructors must also familiarize themselves with all University emergency procedures including evacuation (see above). Faculty will train students in the proper handling of chemicals, the safe operation of equipment and how to follow experimental procedure. *Students must receive instructions for operation of instrumentation, equipment and handling of chemicals from the instructor before working in the lab.* Safety Data Sheets (SDSs) provide information on chemical properties and a description of proper handling procedures and should be reviewed before working with any hazardous chemical. An SDS binder is in each laboratory.

- Faculty is responsible for ensuring students wear appropriate Personal Protective Equipment (PPE) and that they are wearing it properly. *Faculty should check that students have appropriate footwear before starting lab.*

- Faculty and staff will determine proper disposal procedures for all hazardous materials *before start of the lab. Faculty members are also responsible for the proper* labelling of all reagents and hazardous waste and ensuring students are following procedure.

- Potential hazards must be minimized or eliminated wherever possible. Faculty should make sure that all student's personal items are stowed in the designated area, such as the cubbies for this purpose. Always keep the floor and areas around emergency equipment such as showers, eye wash stations and natural gas access panels clear. Spills should be cleaned up immediately.

- *Laboratory doors are never to be left propped open*. The doors are not to be manipulated in any way (hex wrenches, magnets) or held open with trash cans, door stoppers or the like. ***This is necessary for the safe operation of fume hoods and HVAC systems, as well as, general safety (access control).*** If students must leave during the laboratory, they must knock to regain access. Staff members are responsible to shut doors if they are found open. Any questions or concerns regarding this regulation should be directed to the Assistant Director. In certain situations, with prior approval from the Executive Director, a work order can be placed by the designated staff member, to have doors open for the lab period i.e.: need to go back and forth to instrument room.

- *Students should not be utilizing the prep rooms, research labs, instrument rooms or chemical storage areas without direct supervision*. They should always wear appropriate PPE and clean up after themselves. Any borrowed equipment or glassware should be washed, rinsed, dried and returned to the original location. It is ultimately the supervising faculty's responsibility to ensure students are complying with regulations.

Foot Protection and Clothing

The entire laboratory complex is designated as a foot hazard area. Shoes with solid tops must always be worn in the laboratory area, including when taking exams. Persons with bare feet, open toed shoes or *sandals of any kind (crocs, flip flops, shower shoes)* will not be permitted in the laboratory. Clothing worn in the laboratory should offer protection from splashes and spills. Shorts, miniskirts and tank tops are not recommended. It is not advisable to wear bulky or loose clothing. Please remove all outerwear (jackets, coats) and store in the location provided. Most labs have cubbies for this purpose. Students are provided with chemical resistant aprons and they should always be worn in eye protection areas (see below). Faculty and Staff can wear Lab Coats. Aprons are available if needed.

Eye Protection Areas

The entire laboratory complex in the Unified Science Center 1&2, MFS Building 501, Arts & Science Building and the Sustainability labs in HSC are considered potential eye protection areas where hazardous chemical operations could be performed. In addition, anytime an instructor determines that hazardous operations will be performed, the area is considered an eye protection area.

All persons in an eye protection area must wear the following:

1. *Lab coat or lab apron.*

2. *Shoes with solid tops.*

3. *Chemical splash safety goggles which totally seal the entire eye area.*

Eye protection requirements are posted on each laboratory door. **All students are required to purchase their own chemical splash safety goggles with either closed vents or indirect venting, which meet ANSI Z87.1 and CSA Z94.3 standards.** Goggles are available for purchase in the Stockton University Bookstore. If needed, at the beginning of the semester, goggles may be borrowed from NAMS by contacting the instructor or a laboratory staff member. Any goggles that are borrowed and not returned will incur a $20 non-refundable charge. There are extra goggles in each lab and in the prep rooms in the UV cabinets for this purpose. Please do not open the UV cabinets while they are running. See a staff member for assistance if you find the cabinet locked.

Students in some Biology laboratories may wear safety glasses instead of goggles. These also must meet ANSI Z87.1 and CSA Z94.3 standards. The instructor will let you know when safety glasses provide enough protection. Shared safety glasses that are suitable to wear over eyeglasses are provided in labs that use them. These glasses also over UV protection. Students may not wear safety glasses in any Chemistry laboratory. Any safety glasses that are borrowed and not returned will incur a $20 non-refundable charge. There are extra goggles and glasses in each lab and in the prep rooms in the UV cabinets. If students request safety glasses for research, they can be borrowed from NAMS. See a laboratory staff member. **There are lens wipes available to clean lenses without harming the protective coating.** Ask a staff member.

Hair and Jewelry

Individuals having long hair must tie it back or otherwise restrict it to keep it out of the workarea. *Long hair is defined as hair that is long enough to fall forward into the work area.* Those with long beards must tie them up or tuck them in. The same rule applies to head dressing, scarves or similar attire. It is strongly recommended that jewelry not be worn while using chemicals. A splash or spill could cause chemicals to be retained under jewelry against the skin surface and cause injury.

Behavior

Mature, responsible and professional behavior is always required in laboratory facilities. ***Faculty and staff must report threatening or violent behavior to campus police by dialing 911***. All persons must report unsafe conditions or practices to the laboratory instructor, Laboratory Safety Officer or laboratory staff. ***Once again, the laboratory faculty and staff have the authority to expel any student from the laboratory or to halt any activity taking place in the laboratory if a safety procedure or regulation is violated or a potential hazard exists.***

Broken or damaged equipment

Broken or damaged equipment, especially glassware, must never be used under any circumstances. Glass having stars, cracks or chips should be disposed of. Dispose of broken glass using the dustpan and brush or tweezers provided in each lab. Never leave broken glass in sinks or on the bench. *Do not touch with hands or pick up with paper towel!* Broken glass should be deposited in the designated broken glass boxes. *These boxes are for glass only.* ***Trash should never be deposited in them as this is a fire hazard.*** *Broken glass boxes are available in every laboratory research lab and prep room****. If full, notify a lab staff member. Do not overfill! Never put chemicals in these containers! All scintillation vials must be empty with contents properly disposed of.***

Damaged electrical cords should never be used. Notify your instructor of any damaged wiring. *Plugs should not be pulled out of outlets by the wire!* ***Pull plugs from plug itself.*** Always wrap up cords properly when finished using the Velcro cord keeper provided. Do not wrap cords around equipment especially when hot i.e. hotplates! Note that many of the outlets in labs are GCI and may need to be reset. Report any electrical problems immediately to a laboratory staff member or the Assistant Director.

Always check tubing and connections on any equipment before use. This is especially important for tubing used with natural gas (Bunsen burners) or high-pressure air or vacuum apparatus. If tubing is damaged, do not use! See a laboratory staff member for replacement. Always check water baths for appropriate water level before using. Only refill with DI water (type II only). Never run a pump dry or a water bath with insufficient water.

Authorization to work

Students are not permitted to work in any NAMS laboratory facility without direct supervision, unless arrangements have been made between the faculty supervisor and NAMS Executive Director ahead of time. *Faculty members are responsible for securing all state and federal permits for student related laboratory procedures or experiments.* The "buddy system" (two or more working together) must be utilized when performing fieldwork. *Working alone in laboratories during off-hours is not advisable for safety and security reasons.*

Please let the Executive Director, Assistant Director or a laboratory staff member know if you are working in the lab alone. Faculty/ Staff working in separate laboratories outside of normal working hours should make arrangements to periodically check on each other. No hazardous experiments should be undertaken by a faculty or staff member working alone in the laboratory.

Attendance of Operations

Operations or experiments are not to be left unattended unless automatic safety controls are in place. Set-ups are not to be left under the supervision of another party who is not familiar with the proper handling of the hazards involved. ***If it is necessary to leave an experiment/ apparatus in operation unattended, please obtain approval from the responsible faculty member and post a "yellow sheet" next to the experiment/ apparatus, as well as on the door/window facing out to be read in an emergency***. The information provided must include the reaction/experiment in progress, the faculty member responsible, *contact information (important)* and set-up/ break-down date. The Laboratory in Progress sheet (yellow sheet) will be available in each prep room. Laboratory staff and/or the Assistant Director must be notified if the experiment is to be in operation overnight, otherwise the apparatus will be removed, if set up in a common lab area. *All chemicals associated with the experiment need to be properly labeled on containers and the yellow sheet (if in a reaction flask).*

Housekeeping

Keeping laboratories clean and well organized is a big component of safety and accident prevention. All glassware and equipment must be washed (labels removed), rinsed with deionized water and dried (drying racks are available) before being returned to their proper locations. Never put away dirty glassware or put dirty glassware on the rack! All benchtops must be wiped down after finishing an experiment. In Chemistry laboratories, damp sponges should be utilized using water or soap and water. In Biology laboratories, Clorox wipes or 70% ethanol or isopropyl is recommended. *Do not use chloride containing substances on stainless steel as in biosafety cabinets – this will cause pitting.* The lab must always be left organized and clean. Sponges, scrub pads, detergents and test tube brushes are available in each lab by each sink. In Biology labs, a 1:10 bleach solution is provided if needed. Balances must be brushed off after each weighing using the brush provided. *Do not use water or sponges on the balances!* If a liquid is spilled on the balance, clean it up using paper towels or spill pad immediately. ***To clean the area around balances after brushing, do not move the balance.*** Use the dustpan and brush. If you do move the balance for any reason, it must be leveled again.

- Other equipment such as water baths, electrophoresis units, pH meters, centrifuges, and melting point apparatuses need specific maintenance and cleaning and the instructor is ultimately responsible for the condition of the equipment utilized in the laboratory. If unsure of anything, ask lab staff for assistance.

- If laptops are used, at the end of each lab, laptops must be powered off, plugged into the charger cable. If charging station is cart, make sure laptops are off and plugged in to the appropriate numbered slot. Laptop carts and podiums must always be locked when not in use. ***If laptops are out on benchtop, simply power off and leave plugged in for the next section.*** *Laptops should not be removed from a prep area or teaching lab without first notifying the designated staff member or the Assistant Director.*

- Any shared glassware or equipment across sections must be cleaned and returned at the end of the lab section before leaving and not placed in the student lockers. *Faculty is ultimately responsible for ensuring all shared equipment and glassware is returned. No chemicals should be stored in the lockers. Lockers will be checked periodically during the semester and extraneous items will be removed. A violation notice will be placed in the locker.*

Authorized Visitation

Adult visitors are permitted in NAMS Academic Laboratories and Field Facilities only when accompanied by a NAMS faculty or staff member. They must wear appropriate PPE. ***They must also fill out the visitor's health pledge during COVID-19 restrictions.*** Visitor.stockton.edu

Children

Under special circumstances, children can be allowed into the science laboratories for a short period of time *only if accompanied by a NAMS faculty or staff member*. See the Laboratory Director *at least two weeks in advance* for proper approval. Under no circumstances can a child be left unsupervised in a laboratory, hallway or restroom outside of a laboratory. Please refer to University policy # V1-100 Protection of minors https://stockton.edu/policy-procedure/documents/policies/VI-100.pdf?1585758546325 for further information

Prohibited items

No vaping/smoking, eating/drinking, chewing gum, applying make-up/ lip product or storage of food/drink is permitted in any of the laboratory areas, instrument rooms, chemical storage areas or research laboratories. Skateboards, rollerblades, bicycles or hover boards are not permitted in any NAMS laboratory in accordance with University Policy. **The operation or riding of the above in any NAMS laboratory facilities or hallways is prohibited. No pets are allowed in NAMS Laboratories or Field facilities, see University Policy III-147. Weapons of any kind are prohibited, See policy III-148.**

Autoclaves

- There are two types of autoclaves at Stockton, Steris in USC1 and Lancer in USC2.

There are three autoclaves in USC 1 (152,252,352) and two in USC2 (231 and 324)***. Autoclaves are to be operated by authorized personnel only.*** Authorized personnel include those who have been properly trained on the safe operation, appropriate use and emergency procedures of our autoclaves. ***Students are prohibited from using the autoclaves without direct supervision.*** If you have waste that must be autoclaved, place in appropriate bags (in every prep room) and **close loosely** with a twist tie. Tubes must be loosely capped and in racks. **A *small piece* of indicator tape should be placed on each bag before autoclaving**. The following must be posted on the autoclave when it is in use: **what is being autoclaved, name and contact number.** i.e.: Genetics lab waste, Dotts, x6837. When unloading, wear PPE. Do not stand directly in front of door when opening. **Be mindful of steam!** If your waste has spilled into the tray, you are responsible to clean it up. Always use the appropriate cycle for what you are sterilizing**.** ***Liquids should never be autoclaved on a "dry" cycle***. After cycle is complete, the autoclave should always be placed in stand-by mode. Any questions about which cycle to use or safe operation, please see a laboratory staff member. Refer to SOP # 2020-## for further information.

Microscopes

Do not use a microscope if you have an eye infection or are sick. *Do not use mascara when working with a microscope.* Always carry the microscope with two hands, one under the base and one holding the arm handle. When finished using the microscope, the cord must be wrapped neatly around base or cord keeper. Make sure the stage is in lowest position and eye pieces face handle, if moveable. Please do not remove rubber eye cups. ***Microscopes must be returned to the appropriate cabinet in the appropriate numbered slot with handle (arm) facing out. Microscope cabinets must always be kept locked when not in use.*** Immersion oil is only used on 100X power. *Only one drop is needed to achieve adequate results*. *After use, oil must be cleaned from the lens and slide with lens paper.* In the event of excessive oil, use Sparkle non-ammonia cleaner and lens paper. **Lens paper must be used to avoid damaging the lens. If a problem is noticed with any microscope, the microscope should be labeled with information and contact number of the instructor or staff member that noticed the issue. An email should be sent to designated staff member with the microscope id number, the description of the problem and any troubleshooting you have done.**

Specimens and live animals

Removal of any specimen (preserved or not preserved) or live animal from the laboratory is strictly prohibited. No live animals are to be handled without direct supervision from animal laboratory staff. This is for your safety, as well as, the safety of the animals.

Animal carcasses/ waste

Animal carcasses from dissection must be disposed of in the provided, white, carcass bins. Do not put in regular trash! The bins must be placed outside of the laboratory at the end of the lab with the lid tightly closed, to be picked up and disposed of.

Open Flame/ natural gas

Open flame, such as the one produced by a Bunsen burner or alcohol lamp must never be left unattended. As stated previously, hair must be pulled back before using. Electric heating devices such as Bacti-cinerators, heating mantles, water baths and hot plates are safer heat sources than open flame and should be used where appropriate. Bunsen burners utilize our natural gas supply. *All-natural gas valves on benchtops must be turned off after lab session.* It is the instructor's responsibility to ensure all gas valves are turned off before leaving the lab. *Do not use the red emergency off button unless it is an emergency*. If you smell gas in the laboratory, report it immediately to your instructor who will then notify lab staff and/or the assistant director. Press the emergency off button. Leave the room. The situation will be assessed and if necessary, there will be an evacuation of the area. Do not attempt to use an open flame, electric lights or appliances until you are told it is safe to do so.

Gloves

There are several types of gloves stocked in our laboratory facilities. Glove charts and Safety Data Sheets should be consulted to determine the effectiveness of a particular type of glove to protect against heat, cold or chemical exposure. Contact the Assistant Director if advice is needed. If you have a known allergy to any of the materials in the protective gloves, please request an alternate type of glove that is suitable for the work being performed. We stock nitrile gloves in small, medium, large and extra-large. Latex gloves can be provided. If a smaller size is required, contact lab staff or the safety director and these will be provided. There are autoclave gloves and cryo gloves available. Please notify a member of laboratory staff if gloves are damaged and they will be replaced. Do not used damaged gloves!

Chemical Exposure

In the event of a chemical exposure to your person, you should stand under the shower for at least 15 minutes. In this case, all clothing must be removed while standing under the stream of water. The fire blanket and/or towels can be used to provide privacy. Do not waste time. Scissors are available to cut off clothing if necessary. There are scrubs, towels and shoes available in each prep room to change into. A staff member will assist you.

In the case of eye exposure, you must hold your eyelids open while the water flushes the eye area for at least 15 minutes (For bases, 30 minutes). Seek medical evaluation immediately after this procedure is completed. Eyewash fountains and safety showers will provide a copious flow of appropriate temperature water when activated that will accumulate on the floor if a drain is not installed close by. Spill pads are available in every lab and in each prep room to corral the water.

Engineering Controls

HVAC (heating, ventilation and air conditioning)

For HVAC equipment to operate properly, all laboratory doors must always be kept closed including doors to the prep room. Staff may prop open prep room doors in order to move carts easily in and out during lab prep only. If you notice a problem with room temperature, humidity (wet floors or walls) or ventilation, please contact a laboratory staff member or the AD who will contact the designated staff member and initiate a work order (school dude).

Fume Hoods

A chemical fume hood is the main piece of laboratory equipment that protects anyone working with hazardous chemicals. When properly used, fume hoods serve as a physical barrier and protect anyone working in the hoods from inhaling chemical gases, vapors, and aerosols. The fume hoods should be fully operational 24 hours a day, 7 days a week and are equipped with electronic safety monitors. The safety monitor will produce a visible and audible alarm when the performance of the fume hood is not sufficient to contain the fumes being generated inside. Fume hoods are hard vented to the outside of the building.

USC1 fume hoods are pressure differential and USC2 fume hoods are constant volume. When not utilizing the fume hoods, the sashes should be in closed position. Raising the sash higher than 12 inches will trigger the alarm. Never put you head into the fume hood. Equipment should always be 6 inches from the front edge. Nothing should ever be stored in the fume hoods.

Fume hoods with horizontal sliding sashes are designed to be accessed by sliding the sashes open. ***For those fume hoods that have the capability to be opened horizontally or vertically, ensure horizontal sliding sashes are in the closed position before raising vertical sash.*** For those that have only vertical sashes, the face velocity should be maintained higher than 100 feet per minute to allow the vertical sash to be fully open (12 inches) while maintaining the required face velocity for safe operation. The hoods are certified yearly.

Guidelines which must be followed when utilizing a fume hood.

- Appropriate PPE must be worn.
- A fume hood should never be used if the alarm light is red and/or the audible alarm is sounding or there is signage indicating not too use.
- If a hood is malfunctioning in any way, contact a staff member or the Assistant Director.
- Chemicals must never be stored in a fume hood.
- Equipment, when not in use, must not be stored in a fume hood.
- The fume hood sash must always be closed, except when adjusting equipment.
- *The set-up of equipment, chemicals and glassware must be at least 6 inches back from the edge of the hood*.
- Never place your head inside a fume hood.
- If using a vertical sash, it should be used in the lowest position possible to offer the best protection.
- It is best practice to elevate items so not to impede air flow.
- If there is a spill in the hood, it must be cleaned up immediately and reported to the AD.

Biosafety Cabinets

A biological safety cabinet (BSC) is the primary means of containment developed for working safely with infectious microorganisms. Class II BSCs, the most common cabinets used in laboratories, are designed to provide personnel protection (for you and those around you), product protection (for your samples or specimens), and environmental protection. Stockton's biosafety cabinets are Class II, Type A2 and are in the Unified Science Center 1 & 2. These cabinets are used for biocontainment utilizing positive pressure inside, surrounded by a negative pressure air curtain. They utilize Ulpa air filtration and are hard vented to the outside of the building. Any questions regarding safe operation or cleaning should be directed to lab staff. The cabinets are certified yearly.

Guidelines which must be followed when utilizing biosafety cabinets

- Appropriate PPE must be worn
- **It is best practice to clean and disinfect biosafety cabinet before and after each use, *UV light use alone is not an adequate disinfection technique.***
- Glass, sides and rear, as well as, stainless steel work surface must be disinfected with 70% ethanol before and after use. Never use bleach on stainless steel!
- Disinfect all items before putting in cabinet and before removing
- Be careful not to impede air flow by blocking grills. Always move sash slowly and avoid sweeping hand movements.
- Always utilize clean area – work area – dirty area. Waste bag on rack should be contained in cabinet and closed inside cabinet.
- Fan must be run for at least 4 minutes before beginning to work in the cabinet. Note that the fan will automatically come on when sash is moved into operating position.
- Always ensure that spills are cleaned up immediately. If spill tray is dirty, it must be disinfected. See laboratory staff with questions.
- When not in use, sashes should be down, fan and lights off.

For additional information, refer to the Chemical Hygiene Plan section on Safety Equipment. See Air Quality SOP # 2010-9 in Chemical Hygiene plan for details.

Safety Shields

Safety shields of various sizes are available for use in the laboratories. These include the sashes on the fume hoods. Full face shields are also available for added protection of the eyes and face OVER goggles or glasses. They must be used wherever any chemical splattering, spraying, implosion or explosion is possible. Contact the Assistant Director or a staff member for large blast shields. Vacuum distillation and other pressure related operations require the use of these shields.

Mouth Pipetting

Mouth pipetting is prohibited in all NAMS laboratories and field facilities. Use only approved pipet bulb or pump.

Compressed Gases

Compressed gas cylinders must be used with an approved cylinder holding device and/or a cylinder cart. All persons using a compressed gas cylinder must be familiar with proper and safe procedures for its use. For additional information, consult SOP #2010-17, Working with Compressed Gas Cylinders.

Liquid Nitrogen and other cryogenics

All persons using liquid nitrogen (stored in USC1 355) and other cryogenics such as dry ice (solidified carbon dioxide) must be familiar with proper and safe procedures for its use. Appropriate PPE must be worn. This includes cryo gloves, goggles and face shield. ***Students are not to utilize cryogenics without direct faculty supervision***. Please refer to University SOP # 2010-25 for specific requirements.

Responsibility for Hazard Familiarity and Purchase of Chemicals

No faculty or staff member will procure or use a substance unless:

- The Chemical Hygiene Officer has approved the chemical at the time of ordering and the faculty/staff member has completed a Hazardous Substance Approval Form
- He/She/They is/are familiar with all possible hazards
- He/She/They has/have made a thorough study on the handling of the substance what to do in the event of an accident or incident involving this substance (this includes a review of the appropriate SDS and HSFS). If SDSs are not available for the substance in the laboratories, please contact the Assistant Director.
- He/She/They is/are prepared to take the initiative and responsibility to follow all safety recommendations and guidelines including proper PPE.
- He/She/They make(s) every attempt to eliminate or minimize all possible hazards associated with the substance.

Note: When working with chemicals, the user is responsible for the proper use, storage and annual inventory reporting until the material is transferred to the Chemical Storage Area or disposed of according to federal and state regulations.

Storage of Chemicals

Chemicals are to be properly stored to minimize the possibility of reaction during storage and to minimize danger in the event of a fire. *Flammable cabinets are available for storage of chemicals in research areas and underneath the fume hoods in the following areas:*

- USC1, 1st Floor: 131,132,133,151,152,153,154
- USC1, 2nd Floor: 231,232,233,234,235,251,252,253,256, **257**
- USC1, 3rd Floor: 331,332,333,334,335,337,351,352,353,354, **359**
- USC2, 2nd Floor: 230, 231
- USC2, 3rd Floor: 316, 317, 318, 323,324, 325, 326,

Note: The chemical storage area (USC 257)was designed for long term storage of chemicals. Inventory of chemicals in all areas will be performed on a regular basis and those not in immediate use, will be returned to the storage area or relevant prep room.

Acids/Bases

There are acid cabinets and base cabinets in all laboratories and chemical storage areas and should be utilized. Do not store other items in these cabinets.

Peroxide formers

Chemicals that form peroxides have a limited shelf life. In addition to dating the peroxide former when received, the material should be disposed of by the published guidelines. For additional information, consult SOP # 2013-1, Safe Handling of Peroxide Forming Chemicals in the Chemical Hygiene Plan.

Labeling of Chemicals

All containers of chemicals must be labeled according to the PEOSH Hazard Communication Standard and NJ Right to Know Act requirements. Labels are available in each laboratory that will prompt you to include all required information. Chemical name, preparer and top five ingredients, their concentration (%) and CAS #s. Hazard information should also be indicated.

Chemical Waste Disposal

All chemicals must be disposed of according to state and federal regulations. Properly labeled chemical waste containers will be placed in the laboratory for all chemical waste generated during instructional laboratory experiments. Check with faculty or laboratory staff for approved disposal methods and if you have any questions. Often preprinted hazardous waste labels are available for use in teaching labs. Blank labels are available in each prep room. See staff for resupply. ***Faculty must prepare, properly label and maintain waste containers created in their advanced classes and research activities.***

Chemistry student lockers

Students will be assigned a locker and key and appropriate glassware/equipment. ***It is the student's responsibility to ensure that all items on their locker lists are accounted for, clean and in good condition.*** Cracked or chipped glassware should be replaced when the locker is checked in. Once assigned, the contents of the locker are the responsibility of the student until check out. Students are responsible for keeping their lockers secured and at NO TIME ARE CHEMICALS TO BE STORED IN THE LOCKERS. Lockers will be inspected during the semester for ensure no chemicals are stored, all glassware is properly cleaned, and all shared items are returned. A note of violation will be left in the drawer if the conditions above are not met.

- **Locker Check-in**

  Lockers and keys will be assigned by the Instructor during the first lab session of each course. Students will ensure that the items on their locker list are in their lockers and in good condition by signing the check in sheet. If there are items missing, they should be noted on the list. Laboratory staff (Current Lab Drawer Coordinator) should be notified of what items are needed.

- **Locker Check out**

  All locker contents must be clean and in good condition at the time of check-out. Broken items and inexcusable damage to equipment will result in charges to the student. Students should be sure to clear their records by retrieving their checkout form for the returned equipment.
  Outstanding items in the checkout files indicate that the items have not been returned. Students who do not clear their checkout records will be charged for those items at the end of the term.

- **Charges**

  Students will be charged for unreturned or damaged items. Payments for breakage should be made during the term directly to the Bursars office. Any outstanding charges at the end of the term will result in a hold being placed on the student's account and possible cancellation of registration for the next term.

The following guidelines will be used in the determination of charges:

Returnable supplies and equipment *= current replacement cost plus shipping*

Books *= current replacement cost plus shipping*

Locker keys *= $15.00*

Locker checkout by staff *= $25.00*

Students should note the charges for lost or unreturned keys. The locker checkout charge applies only if the lab staff is required to check out the locker at the end of the term without the student being present. Students withdrawing from the lab course are required to checkout out of their lockers and return all equipment to the lab staff at the time of dropping the course to avoid any of the above charges.

Special Hazardous Substances and Standard Operating Procedures

The regulations and safety requirements included in the Chemical Hygiene Safety Plan must be consulted and followed when working with special hazardous substances (allergens, embryo toxins and chemicals of moderate chronic or high acute toxicity, highly toxic substances or OSHA regulated substances).

Biosafety

Stockton Academic Laboratories and Field Facilities are Biosafety Level I compliant (see below for descriptions). **We have the capability for Biosafety Level II (BSL-2) work, but any work considered Biosafety Level II, must be pre-approved by submitting a plan of work and SOPs to the Director and the Assistant Director of Academic Laboratories and Field Facilities**. All faculty/staff and student research at Stockton University involving biological materials must be registered with and approved by the Institutional Biosafety Committee (IBC) before initiation of experiments. Please fill out all necessary forms to gain approval from this committee.

If you work in a lab that is designated a BSL-1, the microbes there are not known to consistently cause disease in healthy adults and present minimal potential hazard to laboratorians and the environment. An example of a microbe that is typically worked with at a BSL-1 is a nonpathogenic strain of *E. coli*.

Specific considerations for a BSL-1 laboratory include the following:

Laboratory practices

- Standard microbiological practices are followed.
- Work can be performed on an open lab bench or table.

Safety equipment

- Personal protective equipment, (lab coats, gloves, eye protection) are worn as needed.

Facility construction

- A sink must be available for hand washing.
- The lab should have doors to separate the working space with the rest of the facility.

BSL-2 builds upon BSL-1. If you work in a lab that is designated a BSL-2, the microbes there pose moderate hazards to lab workers and the environment. The microbes are typically indigenous and associated with diseases of varying severity. An example of a microbe that is typically worked with at a BSL-2 laboratory is *Staphylococcus aureus*.

In addition to BSL-1 considerations, BSL-2 laboratories have the following containment requirements:

Laboratory practices

- Access to the laboratory is restricted when work is being conducted

Safety equipment

- Appropriate personal protective equipment (PPE) is worn, including lab coats and gloves. Eye protection and face shields can also be worn, as needed.
- All procedures that can cause infection from aerosols or splashes are performed within a biological safety cabinet (BSC).
- An autoclave or an alternative method of decontamination is available for proper disposals.

Facility construction

- The laboratory has self-closing doors.
- A sink and eyewash are readily available.

Institutional Animal Care and Use Committee (IACUC)

All researchers using live vertebrate animals must submit an Animal Use Protocol to be reviewed *and approved* by the IACUC before research can begin*. No animals can be ordered or procured prior to this approval.* Principle researchers are responsible for securing all necessary permits to comply with any federal and state regulations. Please fill out all necessary forms to gain approval from this committee. See the IRB website https://stockton.edu/research-sponsored-programs/irb.html for more information or contact the Chair, Matt Bonnan.

Animal Laboratory

Animal laboratory personnel must enroll in the Occupational Health and Safety Program and be fit tested for a respirator. If your research involves contact with animals in the laboratory, specific training may be required in addition to a fit test for a respirator.

Radiographic equipment

If you are work with the radiographic equipment in the animal labs, including the XROMM, you will be issued a personal dosimeter, which must always be worn when working in the animal lab. Under no circumstances may these be transferred to another individual.

Institutional Review Board (IRB)

The IRB must approve any project that involves participation of human subjects in research or experimentation. Consult the University website for additional information.
https://stockton.edu/research-sponsored-programs/irb.html

Radioisotopes

Approval from the Radiation Safety Officer must be obtained before working with radioisotopes. The New Jersey Department of Environmental Protection (NJDEP) has issued the college a Radioactive Materials License that specifies procurement and possession limits for radioactive materials. Licensed materials can be used only in designated areas with the authorization of the Radiation Safety Officer.

Controlled substances

NAMS maintains a current DEA license and if controlled substances need to be procured for research, see the Director or the Assistant Director. Controlled substances may not be stored in research laboratories or teaching laboratories. They may not be procured without prior approval.

Sharps

All needles, including blunt end, **and syringe barrels** must be disposed of in the green sharps boxes. Once full, contact the Assistant Director for disposal. Pick-ups are arranged twice a year.

Safety Inspections

The Laboratory Safety Officer along with Risk Management conducts regular inspections of the laboratories and reports all findings to the Laboratory Director, Program Coordinators and the Dean. All eye wash stations, emergency showers and fire extinguishers are inspected regularly. All Biosafety cabinets/ fume hoods are certified yearly. Radiation inspections are conducted yearly. Boiler inspections (autoclaves) and fire inspections are conducted yearly as well.

Greenhouse and Environmental Chambers

The greenhouses are located on the second floor of A&S and on the 3rd floor of USC2. A form for class/ research projects needs to be filled out for supplies and an assigned area from the designated laboratory staff member. Three environmental chambers are located on the first floor of USC1 and growth chambers are located in USC2-328. A form needs to be filled out for each project for classes/research and forwarded to the designated laboratory staff member for approval.

If you need a form and are unable to locate one, see a laboratory staff member or the Assistant Director. Once the experiment/ project is completed, all areas must be cleaned up and disinfected if necessary. All equipment and specimens must be removed within 48 hours of breaking down. Supervising faculty is ultimately responsible for ensuring this is done