



# **AUGUSTA**

## **UNIVERSITY**

**College of Allied Health Sciences**  
**Department of Undergraduate Health Professions**  
**Clinical Laboratory Science**

**Academic Year 2022-23**

**Standard Operating Procedure**  
**Campus Laboratory**

Program Director: Mr. Scott Wise, Clinical Laboratory Science (706-721-7633)

Safety Officer: Mr. Brett Rice (706-721-7627)

On campus Faculty and Staff: Dr. James Bryan, Dr. Tiana Curry-McCoy, Mr. Brett Rice, , Mr. Scott Wise; Dr. Sharad Purohit, Ms. Sushama Wakade

Room(s) EC-3400, EC-3401, EC-3402, EC-3409, EC-3420

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## **Section 1: Laboratory Standard Operating Procedures, General Requirements**

### **Facilities:**

1. Access to the laboratory is limited to faculty, staff, students or other persons with permission of the Program Director, when work with BSL-1 & 2 pathogens is being conducted. Access is limited according to attached procedures.
2. The student laboratories have differential pressure rooms, which are rooms that have less [-] air pressure relative to other areas/rooms of the building. Generally, most laboratory/clinical areas draw air from adjacent hallways/non-lab areas for containment purposes. Clinical internship site laboratories are required by federal regulations to maintain differential pressure rooms in the laboratory work area.
3. All doors leading into and out of the student laboratories must be closed at all times.
4. Laboratory doors must be locked when the laboratory is not occupied. All doors leading into and out of the student laboratories must be closed at all times.
5. Spaces between benches, cabinets, and equipment must be kept accessible for cleaning.
6. Eyewash must be flushed at least monthly and kept clear of obstructions.
7. All personnel must know the location of the nearest eyewash and safety shower and must ensure that the area under the shower is kept free of obstructions.
8. Students are only allowed to perform procedures under the direct supervision of faculty or other qualified individuals.

### **Health Requirements:**

1. All faculty and staff must be screened by Employee Health & Wellness before working with potentially infectious materials\*. Any available vaccinations which would reduce the risks associated with exposure to any of the agents in the protocol must be offered to all personnel or a signed waiver must be obtained by the Program Director.
  - a. Blood (whole blood, serum, or plasma), body fluids, and bacterial cultures are used in the student laboratories and are considered potentially infectious materials. In addition, any item that comes in contact with these infectious materials (blood, body fluids, or bacterial cultures) are also considered infectious.
2. All students must meet the vaccination requirements of AU Student Health. All students enrolled in the program are required to meet the health requirements set forth by AU Student Health. All vaccinations must be up to date. The students will be handling blood and body fluids so they must have the Hepatitis B vaccination or sign a waiver explaining

that they understand the risks and choose not to take the vaccine.

3. Persons who are at increased risk of infection, and persons not trained in the required safety precautions should not enter the laboratory when work with infectious agents is in progress. They may enter upon signing Acknowledgement of Understanding Essential Functions and Risks in the Clinical Laboratory Science Program document.
  - a. Students are not required to divulge their health status to the faculty at AU. However, students will be working with infectious agents that require Biosafety Level-2 containment and practices in the student laboratories. They will be handling blood and blood products. Human blood can contain blood borne pathogens, such as HIV and Hepatitis B.
  - b. In the clinical internships, students could encounter agents that require a higher Biosafety containment and practices level. Clinical affiliates will provide PPE and training for students in their clinical facilities who may encounter these agents. Clinical affiliates are required to complete safety training for the AU students prior to or on their first day of their internships.
  - c. In the student laboratories, students will be working with actively growing cultures of:

<i>Staphylococcus aureus</i>	<i>Proteus mirabilis</i>
<i>Staphylococcus epidermidis</i>	<i>Proteus vulgaris</i>
<i>Staphylococcus saprophyticus</i>	<i>Providencia stuartii</i>
<i>Streptococcus pyogenes</i>	<i>Providencia rettgeri</i>
<i>Streptococcus agalactiae</i>	<i>Pseudomonas aeruginosa</i>
<i>Streptococcus bovis</i>	<i>Stenotrophomonas maltophilia</i>
<i>Streptococcus viridians</i>	<i>Acinetobacter baumannii</i>
<i>Streptococcus pneumonia</i>	<i>Alcaligenes faecalis</i>
<i>Enterococcus faecalis</i>	<i>Bacillus cereus</i>
<i>Neisseria lactamica</i>	<i>Erysipelothrix rhusiopathiae</i>
<i>Neisseria gonorrhoeae</i>	<i>Candida albicans</i>
<i>Neisseria meningitidis</i>	<i>Candida krusei</i>
<i>Haemophilus influenzae</i>	<i>Candida parapsilopsis</i>
<i>Haemophilus parainfluenzae</i>	<i>Candida glabrata</i>
<i>Escherichia coli</i>	<i>Candida tropicalis</i>
<i>Klebsiella pneumoniae</i>	<i>Salmonella enterica subsp. enterica</i>
<i>Klebsiella oxytoca</i>	<i>Shigella sonnei</i>

**Safety Training:**

1. All persons entering the laboratory must be advised of potential hazards. Faculty, students, and staff must be trained and made aware of the hazards and appropriate safety precautions before working with any of the biological agents.
2. The CLS students will complete the following safety training events:
  - a. Three University System of Georgia (USG) Right-to-Know (RTK) Training modules:
    - i. [Basic Awareness with the Global Harmonized System Training](#)  
\*Required once as a student
    - ii. [Hazardous Waste Awareness Training](#)  
\*Required annually
    - iii. [Blood Borne Pathogens Training](#)  
\*Required annually
  - b. Fire Safety Training
  - c. Fire Extinguisher Training
  - d. AU Environmental Health and Safety Initial Chemical Safety Training
  - e. AU Environmental Health and Safety Initial Biosafety and Blood borne Pathogen Training for CLS students
  - f. Safety training modules incorporated into the CLSC 3220/6220 Introduction to Clinical Laboratory Science course.
  - g. Any additional safety training incorporated into CLS curriculum courses (e.g. CLSC 4445/6445 Clinical Microbiology).
3. Faculty and staff are required to complete the following safety training events:
  - a. Two University System of Georgia (USG) Right-to-Know (RTK) Training modules:
    - i. [Basic Awareness with the Global Harmonized System Training](#)  
\*Required once

ii. [Hazardous Waste Awareness Training](#)

\*Required annually

- b. AU Environmental Health and Safety Initial Chemical Safety Training
- c. AU Environmental Health and Safety Initial Biosafety and Blood borne Pathogen Training (available through Workforce Learn Online)

\*Required once

- d. AU Environmental Health and Safety Biosafety and Blood borne Pathogen Refresher Training (available through Workforce Learn Online)

\*Required annually

**Work Practices and Personal Protective Equipment:**

Social Distancing/COVID-19 Work Practice Controls:

1. When a student develops symptoms of COVID-19, they must stay home. If they become ill while on campus, they must leave class immediately. Students should report their illness to their professors and are encouraged to contact their medical care provider for guidance and call 706-721-1852 for screening/testing options. Professors will then report suspected and confirmed COVID-19 illness to Human Resources at [REPORTCOVID@augusta.edu](mailto:REPORTCOVID@augusta.edu) \
2. CLS faculty, staff, and students will comply with all Institutional/CAHS guidelines regarding social distancing policies related to COVID-19 transmission.
3. Disposable face masks will be worn at all times while working in the clinical laboratory
4. Face shields will be worn as stated in #6 under “Other Work Practice Controls/PPE”.
5. If available, students will work behind Plexiglas sneeze guard/splash shields when performing laboratory procedures.
6. When required, students will share equipment in accordance with social distancing guidelines by maintaining appropriate distance from other students.
7. Any student who either has an active COVID-19 infection or is recovering from COVID-19 infection may not participate in laboratory session until cleared by Student Health.
8. Students who do not comply with Institutional/CAHS guidelines regarding social distancing and proper use of personal protective equipment will be subject to further disciplinary action under CAHS/AU Student Code of Conduct and Board of Regents (BOR) policies.

Other Work Practice Controls/PPE:

1. Food or drink for human consumption or utensils or cups must be stored outside laboratory work area in refrigerators designated for that purpose only.
2. Faculty, staff, and students must not eat, drink, smoke, handle contact lenses, chew gum, or apply cosmetics in the laboratories. Faculty, staff, and students must not put anything in their mouth, e.g. pencils or pens.
3. Mechanical and manual pipetting devices will be used in the laboratory. No mouth pipetting will occur. Only appropriate pipetting devices will be used.
4. All procedures must be performed to minimize creation of splashes or aerosols. Procedures that may produce aerosols or splashes that are performed in the student laboratories are: vortexing, centrifugations, and cell washing.
5. Students will not take home laboratory reports that were generated in the student laboratories while handling infectious agents. The students will not remove any material from the student laboratory, such as pencils, notebooks and will not take into the student laboratories any material that will be taken home at a later date, unless that object can be cleaned with the approved disinfectant.
6. Faculty, staff, and students working with infectious materials must wear gloves. Contaminated or compromised gloves must be changed IMMEDIATELY. Under NO CIRCUMSTANCES will gloves be reused.

Gloves: Students, faculty, and staff will be provided with laboratory gloves designed for use in clinical/research laboratories. Gloves should be inspected before use to ensure that they are intact, e.g. no holes or tears. The students will receive training in Introduction to Clinical Laboratory Science (CLSC 3220/6220) in how to remove contaminated gloves safely. Contaminated gloves will be disposed of in appropriate biohazardous waste trash cans.

7. Faculty, staff, and students must wash hands after handling infectious materials, after removing gloves, and before leaving the laboratory.

Hand Washing: Students will receive training in the CLSC 3220/6220 Introduction to Clinical Laboratory Science course in how to appropriately wash hands and when hands should be washed.

8. Face protection (goggles, mask, face shield, or other splatter guard) must be used for all procedures when such procedures could produce splashes or sprays of infectious or other hazardous materials. See section 3 for more detailed PPE requirements.

Face and safety glasses: Students will be provided with a new face shield for each student laboratory at the beginning of the semester. The face shield will be used when a procedure is being performed that could produce a splash or spray. For example:

- a. When opening tubes that contain potentially infectious agents, such as vacutainer tubes
  - b. When using the centrifuge
  - c. When performing blood banking procedures, such as manual cell washing automated cell washing, or serotyping
  - d. When pipetting blood or blood products
  - e. When preparing blood smears for hematology
  - f. When working with microorganisms
9. Protective clothing must be removed and left in the laboratory before going to non-laboratory areas (restroom, cafeteria, library, administrative areas).

Lab coats: Students are provided with a disposable laboratory coat at the beginning of each semester. The student must write their name on this lab coat, and when not in use, must store the laboratory coat in the designated area for dirty lab coats. This laboratory coat should not be worn outside of the student laboratories. If the student contaminates the laboratory coat with any infectious agent, he/she will dispose of the lab coat in the appropriate biohazardous waste trashcan, and will be provided with a new disposable laboratory coat.

10. Protective clothing must be either disposed of in the laboratory or laundered by institution. (NEVER taken home!)
11. All sharps\* must be placed in red (approved) sharps containers.

\*Sharps are defined as any material that can puncture the skin (e.g. needles, broken glass). All venipuncture needles used have safety devices. Plastic supplies will be used, whenever possible, to minimize the amount of contaminated glassware produced. There are some laboratory items in the student laboratories that are glass. These are:

- a. Chemistry – use of glass volumetric pipettes for preparation of chemicals used in laboratory procedures. Plastic pipettes are not acceptable for use in these procedures (leaching of chemicals from plastic could cause problems with analyte analysis).
- b. Microbiology – use of glass slides for gram staining procedures and use of glass culture tubes. Plastic slides are not an acceptable alternative for gram staining procedures. Glass culture tubes are used to prepare culture media, which requires autoclaving for sterilization.
- c. Hematology – use of 12 x 75 mm glass tubes for coagulation studies, use of glass hemacytometer chambers for determination of cell counts, use of glass slides for



preparation of peripheral blood smears, use of glass volumetric pipettes for preparation of chemical reagents. Plastic tubes and slides are not acceptable for use in testing procedures. (leaching of chemicals from plastic could cause problems with coagulation test results and/or cell analysis).

- d. Blood Bank – use of 12 x 75 mm glass tubes for blood bank testing procedures, use of glass slides for typing procedures. Plastic tubes and slides are unacceptable for use in blood bank testing procedures (agglutination is affected as well as antibody titer levels).
- e. Molecular – Use of glass beakers to prepare agarose gel. Plastic beakers are not suitable for the preparation process which requires agarose gel to be heated to boiling temperatures.

When sharps containers are  $\frac{3}{4}$  full, they must be closed and removed from the laboratory.

- 12. No infectious liquids will be poured down the drain unless it have been decontaminated or disinfected first. To decontaminate the liquids, concentrated bleach will be added to a final concentration of 10% and allowed to stand for 30 minutes. At the end of 30 minutes, the liquid can be poured down the drain.
- 13. No laboratory stains or chemicals are poured down the drains. Stains and chemicals will be collected, following EH&S safety guidelines for disposal by EH&S staff.
- 14. All work surfaces must be decontaminated at the completion of work, at the end of the day, or after any spill or splash of viable material according to attached procedures. The surfaces will be decontaminated with either:
  - a. Bleach Rite – the Bleach Rite solution will be sprayed onto the work surface, allowed to sit for 60 seconds, and then removed.
  - b. Opticide 3 – the Opticide solution will be sprayed onto the work surface and allowed to sit for 3 minutes and then removed.
- 15. Laboratory equipment, surfaces and other contaminated materials must be decontaminated with an effective disinfectant (Bleach for on nonmetal surfaces and Opticide on all surfaces) on a routine basis, i.e. after work with infectious materials is finished, and especially after overt spills, splashes, or other contamination according to attached procedures. Equipment must be decontaminated before removal from the laboratory (for repair maintenance or other purposes).

Note: Plexiglas sneeze shields/splash guards may only be cleaned with soap and water. Ammonia and alcohol based products can damage Plexiglas and make surfaces look “foggy.” A dilute solution of bleach (10%) may also be utilized.

**Accident or Exposure:**

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1. Spills and accidents must be immediately medically evaluated, and then reported to the Program Director and Department Chair. Spills and accidents must also be reported to Environmental Health and Safety at (706) 721-2663.
2. Any personnel with overt exposure will be taken to the appropriate site (Faculty and Staff to Employee Health & Awareness or Students to Student Health Services), and/or the ER for immediate (<1 hour) post-exposure medical intervention and monitoring. Any overt exposures of personnel to biological agents will be reported to the CLS Program Director, Scott Wise, and the Safety Officer, Brett Rice, within 24 hours. Exposures must also be reported to the Biosafety Office at (706) 721-2663,
  - a. Information on exposure incidents is posted on the AU Student Health Services website at: [Blood/Biohazard Exposure](#)

If you have been exposed to another person's blood or body fluids, please follow the instructions below:

**Exposure on campus or within 30 minutes of Augusta University campus:**

1. Immediately cleanse wound with soap and water or irrigate splash areas (eyes, mucous membranes) with normal saline or water.
2. Notify attending physician/nurse supervisor to report your incident
3. Labs should be ordered on the source patient: HIV Ab, HCV Ab, HBV Ag (and other labs if necessary). Be sure to write “Augusta University STUDENT EXPOSURE” on the lab requisition of the source patient.
4. Complete hospital/clinic incident report and Student Health Intake Form: [SH Exposure Incident Form](#). Please include the source patient's medical record number and source code (if assigned) on the incident form. Keep a copy of all paperwork.
5. Within 3 hours of exposure, report to Student Health (706-721-3448) located in Pavilion II, Mon-Fri, 8:00 am – 4:30 pm. If Student Health is closed, report to nearest emergency room for lab testing and HIV prophylaxis assessment.
6. If the treating provider has questions concerning your exposure, contact the PEP Line at 1- 888-448-4911.
7. Submit a copy of your exposure paperwork to Student Health Nurse (contact CLS Safety Officer for the current Student Health Nurse contact information).
8. Follow-up at Student Health or designated clinic as indicated.

**Exposure at another facility outside of Augusta University campus (over 30 minutes away from campus):**

1. Immediately cleanse wound with soap and water or irrigate splash areas (eyes, mucous membranes) with normal saline or water.
2. Notify the facility's attending physician/nurse supervisor to report your incident
3. The following labs should be obtained on the source patient: HIV Ab, HCV Ab, HBV Ag (and other labs if necessary).
4. Complete hospital/clinic incident report and Student Health Intake Form: [SH Exposure Incident Form](#). Keep a copy of all paperwork.
5. Within 3 hours of exposure, report to facility Employee Health or nearest emergency room for lab testing and HIV prophylaxis assessment (where you will report depends on the facility's exposure policy).
6. If the treating provider has questions concerning your exposure, contact the PEP Line at 1- 888-448-4911.
7. Submit a copy of your exposure paperwork to Student Health Nurse (contact CLS Safety Officer for the current Student Health Nurse contact information).
8. Follow-up at Student Health or designated clinic as indicated.

Please present your insurance card to outside facilities during your exposure visit(s) so your insurance information may be filed or documented accordingly. Student Health is not responsible for charges incurred as a result of your exposure incident and you will be responsible for any charges not covered by your insurance plan.

Please contact AU Student Health for further questions concerning Augusta University student exposures.

### **After Hours Care for Exposure or Accident**

If you have a blood or body fluid exposure or other emergent condition, report directly to an in-network emergency room. See AU Student Health Services (<https://www.augusta.edu/shs/>) for insurance information and a list of in-network facilities and providers covered under student health insurance.

If you have a medical problem and questions as to whether you need to be seen in an emergency department after hours, you can call 706-721-4588 and ask to speak with the AU Health Family Medicine resident on call.

If you are covered by the student-group insurance plan and it is after clinic hours, you do not need a referral to be seen by an outside provider. Make sure your provider is in-network to maximize the reimbursement from the insurance company. Please note urgent care centers typically charge less than an emergency room.

If Student Health is closed during normal hours (Monday -Friday 8:30 AM - 5:00 PM)

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and you want to be seen at AU Family Medicine Clinic, you can call 706-721-9586 or 706-721-3930. Make sure to identify yourself as an AU student.

## **Section 2: Dress for Student Laboratories**

1. Faculty, laboratory assistants, and students are required to dress appropriately for all student laboratories. If the student is not dressed appropriately, they will not be allowed to enter into or perform the student laboratories until corrected.
2. Shoes that cover the entire foot are required. These shoes should not be cloth. They can be either leather or plastic, and there cannot be any holes in the shoes.
3. Faculty, laboratory assistants and students must have pants or skirts that cover their entire legs. Skirts must not touch the floor. Shorts or short skirts CANNOT be worn.
4. Appropriate PPE that is required for that laboratory must be worn. AU will provide the PPE, but it is the responsibility of the individual to wear it and to use it appropriately.
5. If the individual has long hair, past shoulder length, it must be tied back away from the face. This applies to beards as well.
6. Long dangling earrings should not be worn.
7. Fingernails should be short (1/4 inch or less), clean, well-manicured and appropriate for the work setting. Artificial nails have high potential for growth and transmission of bacteria and fungi and are not allowed.
8. All cuts must be covered with a Band-Aid before gloves are donned.

## **Section 3: Laboratory Standard Operating Procedures for Specific Tasks**

### **Cell Washing**

\*PPE required – lab coat, gloves, face shield, safety glasses

#### **Manual cell washing**

1. Blood banking requires a 5% suspension of red cells for testing. The student will prepare this solution following the blood bank technical procedure provided in the student manual.
2. After the addition of saline to the red cells, the student will cover the cell suspension with parafilm, and then centrifuge the solution.
3. The student will remove the solution from the centrifuge and decant the supernatant into

a beaker containing a 10% bleach solution.

4. The student will wash the cells the required number of times outlined in the technical procedure.
5. At the end of the laboratory session, the laboratory assistant will add bleach to the discarded solution to ensure a 10% solution of bleach, allow the solution to sit for 30 minutes, and then discard the solution down the drain.

### **Automated Cell Washing**

1. Blood banking requires that red blood cells that have already been washed be washed using an automated cell washer. For this procedure, the student will follow the blood bank technical procedure provided in the student manual.
2. The laboratory assistant will use an empty saline container to collect the discard solution from the automated cell washers.
3. The cell washer will be placed on the counter and the discard collection container will be placed stably on the floor. Tubing will extend from the cell washer to the collection container. The collection container will sit in a secondary container with sides.
4. The laboratory assistant will pour bleach into the discard collection container at the beginning of each lab to ensure a 10% bleach solution.
5. At the end of each laboratory session, the laboratory assistant will add more bleach to the discard solution to ensure a 10% bleach solution was obtained, allow the solution to sit for 30 minutes, and then discard the solution down the drain.

### **Centrifugation**

\*PPE required – lab coat, gloves, face shield, safety glasses

1. To operate centrifuges make sure the covers are closed (including serofuges).
2. Keep hair, beard, hair ribbons or other frilly or dangling items OUT OF THE WAY. Keep lab coats buttoned to prevent neckties or other loose clothing from being a hazard.
3. All tubes of specimens (blood, urine, sputum) must be covered with a secure fitting cap or with parafilm before being placed in the centrifuge. Centrifugation creates a vacuum and volatilizes liquids. (Contaminated items become aerosols; flammable liquids become bombs, etc.).
4. Do not open centrifuges until the rotor has come to a complete stop.
5. Blood bank serofuges do not have centrifuge covers. The student must wear a face shield when using the serofuge.
6. If there is a spill in the centrifuge, the student should notify the instructor. The instructor

will clean the equipment, as stated in the instrument manual, with the approved cleaning agent.

7. For blood banking procedures, 12 x 75 glass tubes are used to perform blood bank testing. If a tube breaks in the centrifuge, the student will NOT attempt to clean the centrifuge or remove the broken glassware. The student will notify their instructor of the broken tube, and the instructor will use laboratory tongs or tweezers to remove the glassware from the centrifuge and will clean the equipment, as stated in the instrument manual, with the approved cleaning agent.

### **Disposable Laboratory Supplies**

Disposable laboratory supplies are used in the student laboratories. Examples of these are agglutination cards, Westergren sed rates, plastic pipettes, test tubes, accuvettes, gauze, wooden applicator sticks, cotton swabs, glass slides, test strips, parafilm, tube caps, vacutainer tubes, fingerstick devices, venipuncture needles/holders with safety devices, reagent tablets, and various plastic tube, etc.

1. Disposable laboratory supplies that can puncture red-bagged waste and all disposable glass should be discarded in the Sharps containers.
2. Venipuncture needles are NEVER recapped. The venipuncture needles or the holders have safety devices attached. The faculty, staff, or students will use the one-handed behind-the-needle technique to activate the safety device. The venipuncture device will then be placed in the sharps container for disposal.
3. Sharps containers are placed near areas where sharps are used. Faculty, Staff, and students should not walk while carrying exposed sharps.
4. Contaminated soggy/wet material should be disposed of in red-bagged lined Stericycle box for disposal.
5. Disposable laboratory supplies that cannot puncture red-bagged waste and are contaminated with infectious waste should be disposed of in red-bagged lined Stericycle box for disposal.
6. Disposable laboratory supplies that cannot puncture red-bagged waste and are NOT contaminated with infectious waste can be disposed of in regular waste.

### **Laboratory Equipment**

\*PPE required – lab coat, gloves, face shield, safety glasses

Various types of laboratory equipment are used in the student laboratories. Examples of some of the equipment are spectrophotometers, microscopes, pH meters, electrophoresis equipment, densitometer, PCR analyzer, chemistry analyzer, hematology analyzer, urinalysis analyzer, Gel technology centrifuges and incubators, microtiter plate washers, RPR rotators, mixers, shakers, Rh viewers, fibrometers, cell counters, blood rotators, hemocrit centrifuges, cytospin, slider stainer, slider warmer...

1. Laboratory equipment, surfaces and other contaminated materials must be decontaminated with an effective disinfectant (see Section 1, #14 for appropriate disinfectants) on a routine basis, after work with infectious materials is finished, and especially after overt spills, splashes, or other contamination according to attached procedures.
2. The laboratory assistant and the clinical instructor will provide the students with guidelines for cleaning the instruments. The laboratory assistant and clinical instructors will follow the cleaning procedures outlined in the instrument manual and will use the approved disinfecting agent.
3. "Standard Precaution" measures must be followed by all personnel performing maintenance on equipment that has come in contact with potentially infective material. Gloves must be worn when changing analyzer membranes and tubing.
4. When emptying waste material, the student or laboratory assistant must avoid contact and aerosolization via splatter.
5. Equipment must be decontaminated before removal from the laboratory (for repair maintenance or other purposes).

### **Microbiology**

PPE required – lab coat, gloves, face shields, safety glasses

In the microbiology student laboratory the student will be working with live organisms. The organisms that are used in the student laboratories are outlined in Section 1 Health Requirements, 3c.

1. In the student laboratories, when handling cultures, liquid or agar based, the student will wear a lab coat, gloves, a face shield, and safety glasses.
2. The student will NOT stab petri dish agar plates when streaking for isolation.
3. The student will NOT wave the culture in front of the face to determine what type of smell the organism has.
4. Metal inoculation loops and incinerators are used in the Microbiology student laboratories. The student will use caution when handling the metal inoculating loops and the metal inoculating needles. To sterilize the metal inoculating loops or metal inoculating needles, the student will place the loop or needle into the micro-incinerator until the loop or needle turns red. The student will NOT walk away and leave the loop or needle in the incinerator.
5. When plastic inoculation loops are used in the Microbiology student laboratories, the student will dispose of the plastic loop into the Sharps container. The student will NOT

place the plastic loop into the incinerator.

6. At the end of the student laboratory, the student will place the active culture agar plates into the plate holder. The students may be asked to place the plate holders in the incubator or on the benchtop.
7. To dispose of the culture plates, the student will tape the plates shut with parafilm, and will place the plates into the biohazard sharp container for disposal.
8. For the glass tubes that will be autoclaved, the student will place the capped tubes in the test tube racks that are designated for this, and the laboratory assistant will take the tubes for autoclaving.

### **Pipetting**

PPE required – lab coat, gloves, face shield, safety glasses

1. Manual pipetting
  - a. Manual glass pipets are used in the student laboratories for the pipetting of reagents.
  - b. No infectious materials are pipetted with manual glass pipettes.
  - c. No mouth pipetting is allowed. Only approved devices will be used for pipetting.
2. Automated pipetting
  - a. Automated pipetting devices are used in the student laboratories for the pipetting of reagents and infectious agents.
  - b. Pipette tips should be disposed of in Sharps containers.
  - c. Automated pipettes should be cleaned after the end of each laboratory session.
3. Disposal pipets
  - a. Plastic disposable pipettes are used in the student laboratories. After use, the disposable pipettes can be disposed of in red-bagged waste.

### **Venipuncture**

PPE required – lab coat, gloves, face shield, safety glasses

Venipunctures are performed by faculty, staff, and students for student education. Students will be taught how to perform venipunctures using infection control precautions in the Introduction to Clinical Laboratory Science course. Following the didactic material, the student will begin to perform venipunctures. First, the student performs venipunctures on the phantom arm, which is in the student laboratory EC-3401. Then students will perform venipunctures on each other or an instructor in the designated area (EC-3409) that is separate from the student laboratories. The student will also perform a finger stick.

1. No manual needle recapping is allowed.
2. The needles used for venipuncture have safety devices that allow the student to use the



one-handed behind-the-needle technique to cover the needle with the safety device attached by the manufacturer either to the needle or to the tube holder. Then the venipuncture needle is disposed of in the Sharps container along with attached tube holder or butterfly tubing.

3. The fingerstick device used is a single-use retractable device. Once used, it is disposed of in the Sharps container.

### **Specimens (whole blood, serum, and plasma), used in student laboratories**

Specimens are needed in student laboratory procedures in hematology and chemistry. These specimens will be obtained from Augusta University Health System, Clinical Pathology Laboratories.

The procedure for obtaining specimens is:

1. The laboratory assistant will contact the Clinical Pathology (CP) laboratory staff to ask for specimens.
2. The CP laboratory staff will pull samples for use, using CP guidelines.
3. The CP staff will uniquely identify each sample with a de-identified number, and remove any private health information from the samples.
4. The CP laboratory staff will keep a document that identifies the sample with the de-identified number and the patient medical record number.
5. The samples will then be brought to the student laboratory for use in the student laboratory procedures.
6. If an exposure occurs in the student laboratory, the student will follow Student Health's Blood and Body Fluid Exposure plan found at <http://www.augusta.edu/shs/blood-and-biohazard.php>
7. The instructor will contact the CP laboratory staff to obtain the source information and take this information to Student Health. The instructor will also notify the CP Laboratory Manager of the exposure.
8. When the student laboratory is complete the instructor/laboratory assistant will notify the CP laboratory that the document with the deidentified number and medical record number can be disposed of following AU Health System policy for disposing of documents with private health information.

### **Transport of specimens**

Specimens are transported from the AU Health Clinical Pathology Laboratories to the student laboratories.

1. All specimens will be placed in a sealed leak-proof container or leak-proof sealed plastic bag.

2. This will then be placed in a secondary puncture-resistant container that can be sealed (plastic container with watertight lid). This container will have a biohazard label and contact information affixed to it.

### **PPE**

Students, laboratory assistants, and faculty are provided with PPE for performing laboratories.

1. Protective three-layer SMS fabric long-sleeved cuffed lab coats are used in the student laboratories. Students are given a lab coat at the beginning of each semester. If the lab coat becomes soiled or torn, the lab coat is disposed of and a new lab coat is given to the student. At the end of the semester, the lab coat is disposed of in biohazardous waste.
2. Nitrile examination gloves are provided for all students/staff/faculty. The gloves must be worn when performing all laboratory procedures. The gloves must cover wrists, so there is not exposed skin. If the gloves become contaminated or torn, the gloves are removed and disposed of in red-bagged waste and then hands must be washed. Gloves are never reused, once removed; they must be disposed of immediately.
3. Disposable Full Face Shields are provided for all faculty, staff, and students for laboratory procedures that could produce splashes or sprays of infectious or other hazardous materials.

### **Autoclaving**

The laboratory assistant autoclaves nondisposable microbiology media tubes.

1. Autoclaving is performed using the autoclave instructions in the manual.
    - a. The autoclave is in EC-3402.
    - b. When infectious material is moved from the student laboratories into EC-3402, all material will be sealed and placed in a secondary puncture-resistant container that can be closed with a watertight lid).
  2. Contaminated material (such as media inoculated with the organisms listed in Section 1 Health Requirements, 3c.)
    - a. The contaminated media that was autoclaved is removed from the autoclave and transferred into a biohazard bucket.
    - b. 10% bleach is then added to the autoclaved material in the bucket, allowed to sit for 30 minutes and poured down the drain.
  3. Reusable items (laboratory test tube racks, hematology rockers ...)
    - a. Are autoclaved using the instructions in the manual.
    - b. The reusable items are then washed and placed into use.
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**Disinfection/decontamination**

PPE required – gloves, lab coats, face shield, safety glasses

1. All work surfaces are decontaminated with 10% bleach (Bleach Rite) or Opticide 3.
2. Work surfaces are decontaminated at the completion of work, at the end of the day, or after any spill or splash of viable material.
3. Laboratory equipment, surfaces and other contaminated materials must be decontaminated with 10% bleach (Beach Rite) or OPTI-CIDE-3 on a routine bases, after work with infectious materials is finished, and especially after overt spills, splashes, or other contamination.
4. Equipment is decontaminated before being removed from the laboratory.