1st WEEK

- **Students are responsible to attend the 80% of the laboratory course.**
- **All the experiments have to be completed by each student.**
- **Any experiments not made or completed, have to be completed until/at the MAKE-UP week.**

Following book sources can be useful for the students to improve themselves for qualitative analysis:

- Introduction to Semimicro Qualitative Analysis, J.J. Lagowski, C.H. Sorum, 8th edition, Pearson 2005.
- Fundamentals of Analytical Chemistry 9th Edition; F. James Holler, Stanley R. Crouch, 2013.
- Fundamentals of Analytical Chemistry 8th Edition; Skoog, West, Holler, Crouch Translation Editors: E. Kılıç and H. Yılmaz, Bilim Publications, 2004.

- Registration and departmental laboratory equipment supply for each student.
- General Laboratory Cleaning and Settlement.
- Assignment of responsible students for the preparation of reagent solutions.
- List of some laboratory equipments for all experiments is given to all students to purchase individually and make themselves ready for the next week.
- Information is given about laboratory safety and regulation rules

LABORATORY SAFETY RULES AND REGULATIONS

The following safety rules must be observed while performing any of the scheduled laboratory experiments in one of the Chemistry Laboratories.

Students who are found in violation of the safety rules will be given a warning for the first offense, will be dismissed from the laboratory for the second offense, and will be withdrawn from the class for the third offense.

If a violation is observed at a particular bench (such as spilled liquid - water or hydrochloric acid etc), and those working at that bench deny responsibility, all students working at that bench will be considered to be in violation of the safety rules. Please ask your instructor if any of the items need clarification. Once, you have read through the safety rules and regulations, please sign this sheetand give it to your instructor or any lab assistant.

GENERAL RULES FOR LAB SAFETY

1. SAFETY FIRST - USE COMMON SENSE to avoid accidents.
2. No student is allowed to work in a laboratory unless Lab Supervisory Personnel (Assistant) are present. DO NOT ENTER LABORATORY unless your assistant is present in the lab.
3. Any student who endangers others' safety, or his or her own, will be dismissed from the laboratory.
4. All students must WEAR SAFETY GLASSES (GOGGLES) AT ALL TIMES. Normal prescription lenses are accepted! Violations will not be tolerated and repeated violation will result in failure of the lab and the course.
5. All students must wear lab coats at all times.
6. Shoes (no sandals-no flip-flops) must be worn at all times. Bare feet or open shoes (front or back) are not permitted in the laboratory.
7. No eating, drinking, smoking or a phone call is permitted in the laboratory.
8. Only authorized experiments may be performed. Equipment should be performed only for its intended purpose.
9. No chemicals or equipments may be removed from the laboratory.
10. Do not invite anyone into the lab.
11. Any student who is pregnant should not perform laboratory experiments. Accommodation will be made if necessary to meet departmental requirements.
12. If you are or a student near you injured or if any type of accident or fire occurs, IMMEDIATELY call your assistant for assistance.
13. The working space should be as uncluttered as possible to allow work space and avoid accidents. Also, keep the aisles clear to prevent tripping over your gear. Place jackets, coats, book bags, pocketbooks, etc. at/on the designated area. Ask your assistant for help if needed.
14. Keep your work space clean and tidy. The working space, desk drawers, cabinets, instruments must be kept neat and clean at all times.

15. When lab work is completed, all materials must be returned to their proper places and used benches, instruments and glassware must be cleaned up.
16. Any student who has, or who develops a medical condition (epilepsy, asthma, allergies, diabetes, etc.) should immediately notify the lab instructor.
17. When a fire alarm should occur, place the chemical and equipment safely to the nearest possible table/bench, exit the building calmly and go to the designated area outside. The instructor/technician should be the last one to leave the room, and should close and lock the door. Remain together as a class. The instructor will check to be certain that all students have exited the building. Do not wonder away and stay together. When the "all clear" signal is received, return to the classroom.

WASTE

18. ONLY PURE WATER CAN GO DOWN THE SINK.
19. Follow the instruction of waste disposals. Never discard chemicals through the sink or to a regular trash.
20. Only discard the proper waste that is identified by the label on the waste container/collector.
21. Never mix the waste. Mixing may result in explosions and serious injuries.
22. Never overfill a waste container. If it is full, request a new one from your lab instructor.
23. Laboratory specific wastes:
    a. Solid waste must be discarded to solid waste container.
    b. Silica waste must be dried in the student hood before poured into silica waste container in the hood.
    c. Broken glass should be placed into the broken glass collector. Never discard broken glass to regular trash.
24. Never place regular trash into the waste containers. Normal trash can be thrown into trash bins or to bins labeled as trash.
25. Rinse all disposable or broken glassware with water before discarding it in the broken glass waste container. Rinse all regular glassware thoroughly with water before returning.
26. *If you are unsure on how to dispose of something, ask an assistant!*
27. NO broken glassware left on the bench or in the sink.

SAFETY RULES AND REGULATIONS SPECIFIC TO THE ANALYTICAL CHEMISTRY LABORATORY

1. Students should come to the lab on time.
2. No student is permitted in the laboratory without the instructor being present.
3. Each student must have his/her own lab coat and lab book and safety goggles in the lab.
4. No one is permitted in the laboratory with bare feet, sandals, or shoes (with exposed toes) which do not provide adequate foot coverage.
5. Students with hair shoulder length or longer should tie with a hairclips. You cannot use barette (safety helmet), hat, etc.
6. No unauthorized experiments are to be performed in the laboratory.
7. Do not eat food, drink beverages, or chew gum in the laboratory.
8. Report all injuries (cuts, burns) to the laboratory instructor immediately.
9. Know the location of fire extinguishers.
10. Know the emergency evacuation route.
11. Leave glassware clean and dry at the close of each laboratory period. Wash and wipe desktop with paper towels. Be sure that gas and water are off. Each student is responsible for cleaning up spilled chemicals or broken glassware.
12. Read the label twice before taking anything from a container.
13. Do not take the reagent bottles away from their places. Carry liquids to your bench in clean test tubes or beakers and carry solids in clean beakers or on weighing paper.
14. Take the exact amount of reagent indicated. Larger amounts will not be more effective and may lead to uncontrollable reactions.
15. Never return unused chemicals to stock bottles. Dispose properly.
16. Never use one pipette for different chemicals. Do not insert your pipette or dropper into the reagent bottles. Use the one that is designated (labeled) for that reagent.
17. Discard all water-insoluble solids and organic chemicals in the special containers that are provided.
18. Discard any broken glass in broken glass collector, which is labeled as “Broken Glass Only” or in a regular trash.
19. Never throw matches, litmus paper or any solid waste into the sink
20. Never discard any liquid containing chemicals into the sink without your assistant’s permission.

21. When heating a test tube, never point the mouth of the tube toward yourself or anyone else. Some chemicals may eject violently when they start to boil.
22. Never pick up hot objects with your hands. After heating glassware or crucibles place the item on a wire gauze to cool.
23. To insert glass tubing through a rubber stopper, lubricate the tube and stopper with water or vaseline. Use a cloth or paper towel to protect your hand and hold the tubing near the end to be inserted.
24. If an acid is to be diluted, pour acid slowly into the water with constant stirring.
25. Any chemical spilled on your eye should be washed off with plenty of water for at least 15 minutes at the eye wash. Notify an instructor immediately.
26. Any chemicals spilled on the skin should be washed off immediately and the skin should be flooded with water for several minutes. Notify an instructor immediately.
27. *Never taste any laboratory chemicals.*
28. Never inhale gaseous fumes or position your nose directly above the sample. If you need to determine the odor of a gas, gently fan a small amount of the vapor toward your nose with your hand.
29. In case of fire, notify the instructor immediately. Turn off the heat source. If the fire is uncontrollable, evacuate the room immediately, pull the fire alarm in the hallway, and call the fire department.
30. If clothing catches fire, use a fire blanket or safety shower. If no blanket or safety shower is available, roll the person over the floor while covering with other coats. NEVER spray a fire extinguisher directly on a person.
31. Mercury vapor is invisible, but toxic. A broken thermometer that releases liquid mercury should be reported immediately to the laboratory instructor. Open the windows and leave the room for 15 min.
32. In case of a skin burn, notify the instructor. Minor skin burns should immediately be placed under cold running tap water for 5-10 minutes.
33. *Mobile phonesare strictly forbidden.*
34. Students should use their own calculator. Mobile phones cannot be used as calculator.
35. Each student is supposed to perform all experiments during a term.
36. *A student can take maximum 2 make-ups, if he / she has a medical report. If the student gets "0" from two experiments, he / she fails from the lab.*
37. If you miss a lab with medical excuse, you must contact the lab coordinator before missing the lab or as soon as possible after missing the lab. Make-up dates are announced by the assistants during the term.

38. The quizzes will be given for each experiment at the same time suitable for all groups (depending on weather conditions) during the lab.
39. You are responsible to clean your glassware and bench.
40. Be familiar with the following terms and their effects.

FLAMMABLE	They burn.
IRRITANTS	They irritate eyes, lungs and skin.
TOXIC	They are poisonous, effective either the short or long term.
CARCINOGENIC	They cause cancer.
TERATOGENIC	They cause defects in the unborn fetus.
MUTAGENIC	They cause genetic mutations.
EXPLOSIVE	They explode, usually on being mixed with air.
CORROSIVE	They burn the eyes, lungs and skin.

ACCIDENTS

SAFETY FIRST - USE COMMON SENSE to avoid accidents!

1.Make sure to be in a safe position/place before helping others. If you do not know how to help to others STAY AWAY from the accident area and move to a safer place.

2. Fire. If a person's clothing catches on fire, he/she needs help. Prevent him/her from running. If he/she is close enough, put him/her under the safetyshower because it is more effective than a blanket. If not, make him/her lie down and smother the flames by rolling, wrapping with lab coats, blankets (if available), towels, etc. There are blankets located in the middle of the laboratories. *Never turn a carbon dioxide extinguisher on a person.*

If a fire breaks out, (if time allows) turn off all burners and remove solvents, place the chemical and equipment safely to the nearest possible table/bench, exit the building calmly. If you do not use the fire extinguisher, leave the room immediately to a safer place possibly outside. There are carbon dioxide extinguishers in the laboratory and the positions and operation of these should be known. Point the extinguisher at the base of the flames. Very small fires can be put out with a damp towel by smothering. Only after the safety of all is assured should the matter of extinguishing the fire be considered.

Because a few seconds delay can result in very serious injury, laboratory assistants will guide you on what to do and how to exit during the case of such an emergency.

3. Chemicals.

If corrosive chemicals are spilled on the clothing, immediate showering (with clothing on) is the best remedy. When no safety shower is available remove the

affected clothing immediately, and wash the area for 15 full minutes either in the sink or with the eye wash. Notify an assistant immediately and ask for help.

If chemicals are spilled on the skin, wash them off with large volumes of water. Bromine should be washed off with water and the skin then massaged with ethanol or glycerine. *Do not apply a burn ointment.*

If the *chemical is spilled in the eye*, it should immediately be washed out thoroughly with water using the eyewash. If acid was involved, a weak solution of sodium bicarbonate in an eyecup should then be used. If a base, boric acid is effective.

If corrosive chemicals are spilled on the desk, dilute them with a large volume of water and then neutralize with sodium bicarbonate if an acid, or dilute acetic acid if a base.

IN THE CASE OF EMERGENCY

Report the location of the emergency; give your name, telephone number, and building and floor number. Meet the ambulance or fire crew at the place you indicated or send someone else if you cannot go.

Report the nature of the emergency, whether an explosion has occurred and whether there has been a chemical or electrical fire.

If individuals are involved, report how many and whether they are unconscious or trapped.

EMERGENCY CALLS Emergency/Fire service: 112