

Syllabus Ch117 Fall 2022



STEVENS
INSTITUTE *of* TECHNOLOGY
THE INNOVATION UNIVERSITY

Instructor: Dr. Faith Kim

Course Web Address: <https://sit.instructure.com/courses/60739>
[\(https://sit.instructure.com/courses/60739/modules\)](https://sit.instructure.com/courses/60739/modules)

Contact Info: fkim@stevens.edu

Office Hours in McLean 203 C: **15 minutes BEFORE lab sections** below OR by APPOINTMENT

Location of In-person lab: McLean 203

Sections:

- Session A, M 11:00AM-01:50PM in McLean 203
- Session B, M 02:00PM-04:50PM in McLean 203
- Session C, T 08:00AM-10:50AM in McLean 203
- Session D, T 11:00AM-01:50PM in McLean 203
- Session E, W 08:00AM-10:50AM in McLean 203
- Session F, W 11:00AM-01:50PM in McLean 203
- Session G, R 08:00AM-10:50AM in McLean 203
- Session H, R 11:00AM-01:50PM in McLean 203
- Session I, R 02:00PM-04:50PM in McLean 203
- Session J, F 08:00AM-10:50AM in McLean 203
- Session K, F 11:00AM-01:50PM in McLean 203
- Session L, F 02:00PM-04:50PM in McLean 203

Co-requisite(s): CH115 General Chemistry I

COURSE DESCRIPTION

To understand the chemical principles for each experiment to ensure a greater appreciation of the principles, the data collection and analysis, and the observation encountered for each experiment.

STUDENT LEARNING OUTCOMES

The course will employ a brief introduction for safety precaution that is absolutely necessary. Students will learn to be critical of their observations and collected data. Students must be quantitative in their measurements and develop good laboratory practices and techniques that acquires an appreciation of chemicals and safety guidelines as well as the necessity of proper disposal of chemical waste. Students will understand the chemical principles by hands-on experiences with greater appreciation of the principles, data collection and observation that are encountered during the experiments.

After successful completion of this course, students will

1. be familiar with the good laboratory practices including chemical safety guidelines and chemical waste disposal.
2. be able to interpret quantitative and qualitative scientific data.
3. recognize and implement the chemical theoretical principles to predict chemical and biological properties

COURSE FORMAT AND STRUCTURE

This course is an in-person on campus. To access the course, please visit

<https://sit.instructure.com/courses/49463> (<https://sit.instructure.com/courses/49463/>). For more information about course access or support, contact the Technology Resource and Assistance Center (TRAC) by calling 201-216-5500.

Course Logistics

- **Attendance WET (IN PERSON) session is mandatory for lab report/RDS/plots/graphs credit.** Failure to check-in may result ZERO grade. A short introduction including the safety precautions and experimental procedure/techniques will be addressed prior to the experiment.
- **All students in WET (IN PERSON) sessions must wear a surgical mask, safety goggles, proper clothing/shoes/hair to perform the experiment.** All belongings must be placed in the bottom cabinet of the student bench area. **Absolutely no eating, drinking, and chewing are allowed.** Laboratory safety rules in detail are attached.

- All assignments are available on the course canvas with the specific due date/time depending on the course sessions.

Instructor's Office (McLean 203 C) OR Virtual ZOOM Hours

McLean 203 C (face-to-face) office & virtual zoom hours will be held as stated. Additionally, e-communications will be available via email (fkim@stevens.edu (<mailto:ekang1@stevens.edu>)) and the usual turnaround time is within 48 hours. For the canvas postings, I will check at least 3 times per week. Please, keep in mind that it is not possible for me to respond to every single posting every week but I will be sure to respond to a variety of comments from students each week and attempt to assure equality in terms of responses to students. Furthermore, there is a comment box for each canvas lab report/RDS/plots/graphs assignments for my attention – to ask questions or to call my attention to a particular issue you are engaged in that you would like me to take a look at. If you feel that you are being neglected in any way, please email me (fkim@stevens.edu (<mailto:ekang1@stevens.edu>)) directly. When emailing me, please place in the subject line the course number/section and the topic of the email (i.e. Ch118 Section A – PreLab 2 Question 3). This will help me tremendously in locating you quicker when I scan the hundreds of emails that seem to make it into my inbox each day.

Online Etiquette Guidelines

This course will foster a safe online learning environment for everyone. All opinions and experiences, no matter how different or controversial they may be perceived, must be respected in the tolerant spirit of academic discourse. You are encouraged to comment, question, or critique an idea but you are not to attack an individual. Our differences, some of which are outlined in the University's inclusion statement below, will add richness to this learning experience. Please consider that sarcasm and humor can be misconstrued in online interactions and generate unintended disruptions. Working as a community of learners, we can build a polite and respectful course ambience. Please read the Netiquette rules for this course:

- Do not dominate any discussion. Give other students the opportunity to join in the discussion.
- Do not use offensive language. Present ideas appropriately.
- Be cautious in using Internet language. For example, do not capitalize all letters since this suggests shouting.
- Avoid using vernacular and/or slang language. This could possibly lead to misinterpretation.
- Keep an “open-mind” and be willing to express even your minority opinion.
- Think and edit before you push the “Send” button.
- Do not hesitate to ask for feedback.

TENTATIVE COURSE SCHEDULE

- All laboratory procedures involving potential hazardous chemicals should first begin by obtaining and reading the appropriate Safety Data Sheet (SDS) posted on Canvas.
- Any changes to this schedule will be posted on Canvas under the weekly modules as soon as possible.

Tentative Course Schedule

Academic Week	Lab # (Virtual ZOOM or in-person WET) Topic	Required to read/watch	Canvas assignments: due
Week 1	Lab 1 (Zoom only): Safety, SI units, & Sig. Figures	<ul style="list-style-type: none"> • Lab Safety Videos • Safety Contract • Canvas Lab Manual 	<ul style="list-style-type: none"> • <u>Safety Contract: due END of Lab 1 period</u> (https://sit.instructure.com/courses/60739/assignments/3230) • <u>SI unit & Significant Figure Rules: due BEFORE Lab 2</u> (https://sit.instructure.com/courses/60739/assignments/3231)
Week 2	Lab 2 (Wet only): Basic Laboratory Operations	<ul style="list-style-type: none"> • Canvas Lab Manual • Raw Data Sheet 	<ul style="list-style-type: none"> • <u>Pre_Lab 2: due BEFORE Lab 2</u> (https://sit.instructure.com/courses/60739/assignments/3230) • <u>RawDataSheet_Lab 2: due BEFORE Lab 3</u> (https://sit.instructure.com/courses/60739/assignments/3231) • <u>Post_Lab 2: due BEFORE Lab 3</u> (https://sit.instructure.com/courses/60739/assignments/3230)
Week 3	Lab 3 (Wet only): % Compositions & Impurities	<ul style="list-style-type: none"> • Safety Data Sheet • Canvas Lab Manual • Raw Data Sheet 	<ul style="list-style-type: none"> • <u>Pre_Lab 3: due BEFORE Lab 3</u> (https://sit.instructure.com/courses/60739/assignments/3230) • <u>(https://sit.instructure.com/courses/60739/assignments/3231 RawDataSheet_Lab 3:</u> (https://sit.instructure.com/courses/60739/assignments/3231) <u>due BEFORE Lab 4</u> (https://sit.instructure.com/courses/60739/assignments/3231) • <u>Post_Lab 3: due BEFORE Lab 4</u> (https://sit.instructure.com/courses/60739/assignments/3231)

Week 4/5	Lab 4/5 (<i>Wet only</i>): Limiting Reactant	<ul style="list-style-type: none"> • Safety Data Sheet • Canvas Lab Manual • Raw Data Sheet 	<ul style="list-style-type: none"> • <u>Pre_Lab 4/5: due BEFORE Lab 4</u> (https://sit.instructure.com/courses/60739/assignments/3230) • (<u>https://sit.instructure.com/courses/60739/assignments/3231 RawDataSheet_Lab 4/5:</u> (https://sit.instructure.com/courses/60739/assignments/3231) <u>due BEFORE Lab 6</u> (https://sit.instructure.com/courses/60739/assignments/3231) • <u>Post_Lab 4/5: due BEFORE Lab 6</u> (https://sit.instructure.com/courses/60739/assignments/3230)
Week 6	Lab 5 (<i>Wet only</i>): Reactions in Solutions	<ul style="list-style-type: none"> • Safety Data Sheet • Canvas Lab Manual • Raw Data Sheet 	<ul style="list-style-type: none"> • <u>Pre_Lab 6: due BEFORE Lab 6</u> (https://sit.instructure.com/courses/60739/assignments/3230) • <u>RawDataSheet_Lab 6: due BEFORE Lab 7</u> (https://sit.instructure.com/courses/60739/assignments/3231) • <u>Post_Lab 6: due BEFORE Lab 7</u> (https://sit.instructure.com/courses/60739/assignments/3231)
Week 7	Lab 7 (<i>Wet only</i>): Ideal Gas Law & Stoichiometry	<ul style="list-style-type: none"> • Safety Data Sheet • Canvas Lab Manual • Raw Data Sheet 	<ul style="list-style-type: none"> • <u>Pre_Lab 7: due BEFORE Lab 7</u> (https://sit.instructure.com/courses/60739/assignments/3230) • (<u>https://sit.instructure.com/courses/60739/assignments/3231 RawDataSheet_Lab 7:</u> (https://sit.instructure.com/courses/60739/assignments/3231) <u>due BEFORE Lab 8</u> (https://sit.instructure.com/courses/60739/assignments/3231) • <u>Post_Lab 7: due BEFORE Lab 8</u> (https://sit.instructure.com/courses/60739/assignments/3231)
Week 8	Lab 8 (<i>Wet only</i>): Constant Pressure Calorimetry (CPC)	<ul style="list-style-type: none"> • Safety Data Sheet • Canvas Lab Manual • Raw Data Sheet 	<ul style="list-style-type: none"> • <u>Pre_Lab 8: due BEFORE Lab 8</u> (https://sit.instructure.com/courses/60739/assignments/3230) • (<u>https://sit.instructure.com/courses/60739/assignments/3231 RDS/TempCurves_Lab 8:</u> (https://sit.instructure.com/courses/60739/assignments/3231) <u>due BEFORE Lab 9</u> (https://sit.instructure.com/courses/60739/assignments/3231) • <u>Post_Lab 8: due BEFORE Lab 9</u> (https://sit.instructure.com/courses/60739/assignments/3231)

Week 9	Lab 9 (<i>Wet only</i>) Constant Volume Calorimetry (CVC)	<ul style="list-style-type: none"> • Safety Data Sheet • Canvas Lab Manual • Raw Data Sheet <ul style="list-style-type: none"> • <u>Pre_Lab 9: due BEFORE Lab 9</u> (https://sit.instructure.com/courses/60739/assignments/3231) • (https://sit.instructure.com/courses/60739/assignments/3231) <u>RawDataSheet_Lab 9:</u> (https://sit.instructure.com/courses/60739/assignments/3231) <u>due BEFORE Lab 10</u> (https://sit.instructure.com/courses/60739/assignments/3231) • <u>Post_Lab 9: due BEFORE Lab 10</u> (https://sit.instructure.com/courses/60739/assignments/3230)
Week 10	Lab 10 (<i>Wet only</i>): Spectroscopy (SPS)	<ul style="list-style-type: none"> • Safety Data Sheet • Canvas Lab Manual • Raw Data Sheet <ul style="list-style-type: none"> • <u>Pre_Lab 10 due BEFORE Lab 10</u> (https://sit.instructure.com/courses/60739/assignments/3231) • <u>RawDataSheet_Lab 10: due BEFORE Lab 11</u> (https://sit.instructure.com/courses/60739/assignments/3231) • <u>Post_Lab 10: due BEFORE Lab 11</u> (https://sit.instructure.com/courses/60739/assignments/3230)
Week 11	Lab 11 (<i>Zoom only</i>) Lewis Structure & Molecular Polarity	<ul style="list-style-type: none"> • Canvas Lab Manual • Raw Data Sheet <ul style="list-style-type: none"> • <u>Pre_Lab 11: due BEFORE Lab 11</u> (https://sit.instructure.com/courses/60739/assignments/3230) • <u>RawDataSheet_Lab 11: due BEFORE Lab 12</u> (https://sit.instructure.com/courses/60739/assignments/3231) • <u>Post_Lab 11: due BEFORE Lab 12</u> (https://sit.instructure.com/courses/60739/assignments/3230) (https://sit.instructure.com/courses/60739/assignments/3230)
Week 12	Lab 12 (<i>Wet only</i>): Intermolecular Forces (IMF)	<ul style="list-style-type: none"> • Safety Data Sheet • Canvas Lab Manual • Raw Data Sheet <ul style="list-style-type: none"> • <u>Pre_Lab 12: due BEFORE Lab 12</u> (https://sit.instructure.com/courses/60739/assignments/3230) • <u>RDS/TempCurvesLab 12: due BEFORE Lab 13</u> (https://sit.instructure.com/courses/60739/assignments/3231) • <u>Post_Lab 12: due BEFORE Lab 13</u> (https://sit.instructure.com/courses/60739/assignments/3231)
Week 13	Lab 13 (<i>Wet only</i>): Gas Chromatography	<ul style="list-style-type: none"> • Safety Data Sheet • Canvas Lab <ul style="list-style-type: none"> • <u>Pre_Lab 13: due BEFORE Lab 13</u> (https://sit.instructure.com/courses/60739/assignments/3230) • <u>RDS/Chromatograms_Lab 13: due BEFORE Lab 14</u> (https://sit.instructure.com/courses/60739/assignments/3231)

	(GC)	Manual • Raw Data Sheet	• <u>Post_Lab 13: due BEFORE Lab 14</u> <u>https://sit.instructure.com/courses/60739/assignments/3231</u>
Week 14	<i>Writing a lab report in scientific journal format (Zoom only)</i>	• NONE	• Optional Attendance via zoom • <u>LabReportInScientificJournalFormat: due END of Lab</u> <u>https://sit.instructure.com/courses/60739/assignments/3231</u>

COURSE MATERIALS

Textbook(s): NONE (ALL course materials are freely available on canvas)

Personal Required Material: Chemical Splash Goggles for ALL WET LABS

COURSE REQUIREMENTS

Attendance: Attendance is mandatory. Each wet lab begins with check-in by signing an attendance sheet. Failure to check-in will result ZERO grade for the lab period. Students are **highly encouraged to contact TA or instructor** when they can not attend the anticipated lab session as soon as possible in order to arrange/join an ongoing lab session. Make-up lab session can be arranged **ONLY IF a written note or documentation supporting an absolutely unavoidable absence** is received **WITHIN ONE WEEK** of the absence.

Participation: A short introduction including the safety precautions and experimental techniques will be given prior to the experiment. Any student who missed any part of this period will NOT be allowed to proceed the experiment. All experimental data, observations, errors, problems, and troubleshooting must be individually recorded during the course of the experiment. Students must complete all required lab work, proper disposal of chemical waste, clean up equipment/work area at the end of each laboratory period, which will be included in the lab report grading by TA. Students need TA's or instructor's permission to check out. Failure to check-out may result ZERO grade for the lab period.

SDS Reading Assignment: Lab Safety - All laboratory procedure handling potential hazardous chemicals must begin by obtaining/reading the appropriate **Safety Data Sheet (SDS)**, which is available on the course canvas or by directly go to <http://sigmaaldrich.com/safety-center.html>  (<http://www.sigmaaldrich.com/safety-center.html>).

PreLab Assignment: 5 canvas pre-laboratory questions of each lab must be completed BEFORE the lab period, which is subject to 10% late penalty PER DAY for unauthorized late submissions.

Laboratory Report: Each student must complete their OWN lab RDS/graphs/report (EXCEPT lab 14) including the (scanned/picture) his/her own RAW DATA SHEET BEFORE following LAB and 10% late penalty PER DAY will be automatically applied for ALL unauthorized late submissions. RDS/graphs/report can NOT be accepted via email for credit but MUST be via the course canvas assignments.

PostLab Assignment: 5 canvas post-laboratory questions including data analysis must be completed BEFORE NEXT lab period which is subject to 10% late penalty PER DAY for unauthorized late submissions.

Scientific Paper:

TECHNOLOGY REQUIREMENTS

Baseline technical skills necessary for online courses

- Basic computer and web-browsing skills
- Navigating Canvas

Technology skills necessary for this specific course

- Live web conferencing using Zoom

Required Equipment/software

- Computer: current Mac (OS X) or PC (Windows 7+) with high-speed internet connection
- Microphone: built-in laptop or tablet mic or external microphone

GRADING PROCEDURES

Grades will be based on:

Lab 1-14	100.1% (7.7% each x 14 Labs)
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Grading Scale: will be the standard undergraduate grading scheme for the entire class with NO round off/NO EXCEPTION.

A(>=93.00%), A-(>=90.00%), B+(>=87.00%), B(>=83.00%), B-(>=80.00%) C+(>=77.00%), C(>=73.00%), C-(>=70.00%), D+(>=67.00%), D(>=60.00%), and F(<60.00%).

Late Policy:

All unauthorized canvas late submissions are subject to 10% late penalty PER DAY.

Academic Integrity

Undergraduate Honor System

Enrollment into the undergraduate class of Stevens Institute of Technology signifies a student's commitment to the Honor System. Accordingly, the provisions of the Stevens Honor System apply to all undergraduate students in coursework and Honor Board proceedings. It is the responsibility of each student to become acquainted with and to uphold the ideals set forth in the Honor System Constitution. More information about the Honor System including the constitution, bylaws, investigative procedures, and the penalty matrix can be found online at

<http://web.stevens.edu/honor/> ↗(<http://web.stevens.edu/honor/>)

The following pledge shall be written in full and signed by every student on all submitted work (including, but not limited to, homework, projects, lab reports, code, quizzes and exams) that is assigned by the course instructor. No work shall be graded unless the pledge is written in full and signed.

"I pledge my honor that I have abided by the Stevens Honor System."

Reporting Honor System Violations

Students who believe a violation of the Honor System has been committed should report it within ten business days of the suspected violation. Students have the option to remain anonymous and can report violations online at www.stevens.edu/honor ↗(<http://www.stevens.edu/honor>)..

LEARNING ACCOMMODATIONS

Stevens Institute of Technology is dedicated to providing appropriate accommodations to students with documented disabilities. The Office of Disability Services (ODS) works with undergraduate and graduate students with learning disabilities, attention deficit-hyperactivity disorders, physical disabilities, sensory impairments, psychiatric disorders, and other such disabilities in order to help students achieve their academic and personal potential. They facilitate equal access to the educational programs and opportunities offered at Stevens and coordinate reasonable accommodations for eligible students. These services are designed to encourage independence and self-advocacy with support from the ODS staff. The ODS staff will facilitate the provision of accommodations on a case-by-case basis.

For more information about Disability Services and the process to receive accommodations, visit <https://www.stevens.edu/office-disability-services> ↗(<https://www.stevens.edu/office-disability-services>). If you have any questions please contact: Phillip Gehman, the Director of Disability Services Coordinator at Stevens Institute of Technology at [\(pgehman@stevens.edu\)](mailto:pgehman@stevens.edu) or by phone 201-216-3748.

Disability Services Confidentiality Policy

Student Disability Files are kept separate from academic files and are stored in a secure location within the Office of Disability Services. The Family Educational Rights Privacy Act (FERPA, 20 U.S.C. 1232g; 34CFR, Part 99) regulates disclosure of disability documentation and records maintained by Stevens Disability Services. According to this act, prior written consent by the student is required before our Disability Services office may release disability documentation or records to anyone. An exception is made in unusual circumstances, such as the case of health and safety emergencies.

INCLUSIVITY

Name and Pronoun Usage

As this course includes group work and class discussion, it is vitally important for us to create an educational environment of inclusion and mutual respect. This includes the ability for all students to have their chosen gender pronoun(s) and chosen name affirmed. If the class roster does not align with your name and/or pronouns, please inform the instructor of the necessary changes.

Inclusion Statement

Stevens Institute of Technology believes that diversity and inclusiveness are essential to excellence in academic discourse and innovation. In this class, the perspective of people of all races, ethnicities, gender expressions and gender identities, religions, sexual orientations, disabilities, socioeconomic backgrounds, and nationalities will be respected and viewed as a resource and benefit throughout the semester. Suggestions to further diversify class materials and assignments are encouraged. If any course meetings conflict with your religious events, please do not hesitate to reach out to your instructor to make alternative arrangements.

You are expected to treat your instructor and all other participants in the course with courtesy and respect. Disrespectful conduct and harassing statements will not be tolerated and may result in disciplinary actions.

MENTAL HEALTH RESOURCES

Part of being successful in the classroom involves a focus on your whole self, including your mental health. While you are at Stevens, there are many resources to promote and support mental health. The Office of Counseling and Psychological Services (CAPS) offers free and confidential services to all enrolled students who are struggling to cope with personal issues (e.g., difficulty adjusting to college or trouble managing stress) or psychological difficulties (e.g., anxiety and depression) and who can visit the office in person. CAPS is open from 9:00 am – 5:00 pm Mondays, Wednesdays, Thursdays and Fridays and from 9:00 am – 7:00 pm on Tuesdays during the Fall and Spring semesters; appointments are highly encouraged. For those students who cannot visit the Stevens campus for an in-person appointment, you can contact a local mental health care provider for an in-

person appointment, or if you are enrolled in the Stevens Student Health Insurance, you may call Care Connect for 24/7 mental health support at 1-888-857-5462.

EMERGENCY INFORMATION

In the event of an urgent or emergent concern about the safety of yourself or someone else in the Stevens community, please immediately call the Stevens Campus Police at 201-216-5105 or on their emergency line at 201-216-3911. These phone lines are staffed 24/7, year round. For students who do not reside near the campus and require emergency support, please contact your local emergency response providers at 911 or via your local police precinct. Other 24/7 national resources for students dealing with mental health crises include the National Suicide Prevention Lifeline (1-800-273-8255) and the Crisis Text Line (text "Home" to 741-741). If you are concerned about the wellbeing of another Stevens student, and the matter is *not* urgent or time sensitive, please email the CARE Team at care@stevens.edu (<mailto:care@stevens.edu>). A member of the CARE Team will respond to your concern as soon as possible.

WHAT MAKES CHEMICALS HAZARDOUS?

A chemical is considered hazardous if it is cancer causing, toxic, corrosive, irritating, flammable or reactive (poses a threat to health/environment).

HOW DO CHEMICALS ENTER THE BODY AND CAUSE DAMAGE?

There are many chemicals routinely encountered in the laboratory. Being aware of entry routes and how to prevent entry is the first step in lab safety.

1. *Inhalation* - Gas and vapors go into the mouth and nose. Once inside the lungs, air contaminates can easily enter the bloodstream. Particulate matter, dust from powdered solids, for example, can also be inhaled and cause harm

PREVENTION: WORK UNDER FUME HOOD. AVOID TOUCH NOSE AND MOUTH.

2. *Eye contact* - Splashing of chemicals, burning by heat, perforation by sharp instruments or shattered glass shards.

PREVENTION: ALWAYS WEAR SAFETY GOGGLES. AVOID TOUCHING YOUR EYES.

3. *Skin Contact/Absorption* - Chemical contact with skin (can cause irritation and sensitization) or chemical absorbance through skin (can enter bloodstream)

PREVENTION: HANDLE CHEMICAL REAGENTS WITH CARE. WASH SKIN IMMEDIATELY UPON CONTACT.

4. *Ingestion* - Small amounts of chemicals may enter system through eating and drinking in the lab, through nail biting, licking finger to turn a page

PREVENTION: NEVER EAT OR DRINK IN THE LAB. KEEP HANDS OUT OF MOUTH.

FIRST AID

In case of contact with a chemical reagent follow the steps listed below:

STEP 1 - DONT PANIC!

STEP 2 - CALL FOR HELP: Notify your TA immediately.

STEP 3 - TAKE ACTION: Acid/Base on skin or in eyes: Wash immediately with water (Locate safety showers and eyewash stations in lab); Solvents (toluene, acetone, chloroform) inhalation: Get some fresh air; Ingestion of chemical: Get help immediately.

SPILL, LEAK AND DISPOSAL PROCEDURES

- Be aware of the location of hazardous chemicals in lab.
- If a spill occurs, indicate the identity of the chemical spilled to your TA.
- Allow your TA to contain and clean up the spill.
- Clean yourself to remove any traces of chemical spilled.

LOCATE

- *Safety Shower* (Use when large amount of substance spilled on self)
- *Eye Wash* (Use with eyes held open; Rinse for 15 minutes)
- *First Aid Kit*
- *Fire Blanket and Fire Extinguisher*

LABORATORY SAFETY RULES

The following list of basic safety precautions is provided to insure that our laboratories maintain required safety standards. Individuals not complying with the following rules constitute a safety hazard to themselves and other laboratory occupants and will be removed from the laboratory.

LABORATORY SUPERVISION

1. Students will not be allowed to occupy or work alone in a laboratory unsupervised. Under no circumstance should any person work in a laboratory alone.
2. In the event of a chemical spill, students should immediately depart the laboratory. The laboratory supervisor / instructor will be responsible to take the appropriate action necessary to neutralize and or clean up the spill.
3. Students should be informed of the details and potential hazards of a project prior to the initiation of any procedure involving the use of chemicals. Chemical operations should begin by first obtaining a Material Safety Data Sheet.
4. Unauthorized experiments are forbidden.
5. Prior to entering and working in a laboratory, supervisors should instruct everyone how and when to use the red emergency phones located in the hallways.
6. Chemical reactions and equipment should be quickly secured and the building evacuated immediately when the emergency alarm sounds.
7. All projects involving the use of chemicals should begin by first obtaining an MSDS for the chemicals to be used. Students should be either instructed as how to obtain a MSDS from the Stevens computer system or be given the appropriate MSDS.
8. Laboratory supervisors should refer to and fill out all required forms as directed by the Stevens Health and Hygiene Plan before beginning any laboratory procedures. This plan is available for viewing at <http://attila.stevens-tech.edu/hyg>

PROPER LABORATORY ATTIRE

1. Laboratory occupants must wear safety glasses and any other required personal protective equipment **at all times**.
2. Long hair and loose clothing must be confined. Do not wear sandals, perforated shoes or sneakers. Pants, not shorts, that cover the entire leg should be worn.
3. Contact lenses and sunglasses must not be worn in the laboratory.

4. Rings, watches and other jewelry should not be worn when working with chemicals.
5. Wear appropriate gloves when handling chemicals. Inspect the gloves regularly, replacing them, when necessary.

GENERAL LABORATORY SAFETY

1. Consumption of food, drink or the chewing of gum is absolutely forbidden.
2. Fighting, horseplay, practical jokes and any behavior that may cause injury is strictly forbidden.
3. Flammable solvents should not be heated with or near open flames. All chemical reactions and transfer of chemicals from one container to another must be accomplished in a fume hood.
4. Chemical containers should be tightly capped and stored when not in use.
5. All containers of chemicals (including beakers, test tubes, flasks, etc should be properly marked as to their contents.
6. All chemicals should be returned to inventory, (call X8971) when they are no longer required.
7. A person's mouth should never be used as a source of vacuum for a pipet.
8. Visitors are not permitted in laboratories without proper permission from the responsible supervisor.
9. Glassware must be cleaned and properly stored after use.
10. Fume hoods are not to be used for the storage of chemicals.
11. Equipment / scientific apparatus is not to be left unattended when it is in the process of performing a function.
12. Chemicals should not be stored in beakers, test tubes, flask's etc. Improperly' stored / marked containers will be removed from laboratories.
13. Chemical samples / compounds should be stored in a suitable container and storage area.
14. Smoking is strictly prohibited in any area of the McLean building.
15. Chemical waste containers should be used for the disposal of chemical waste. Chemicals should never be poured down a sink drain. Notify laboratory supervisor when the waste container is approximately one half full.

