Procedures for Independent Use of Instruments in the Science & Technology Building (STB) Teaching Labs

Instrumentation in the Chemistry Teaching Labs, housed in the Science & Technology Building at 1112 Greene Street, is acquired and maintained for the purposes of undergraduate education, which primarily occurs through scheduled laboratory courses. In certain cases, it may be advantageous for undergraduates, graduate students, postdocs, professional staff, or faculty to access and operate selected instruments outside of scheduled class time as part of independent study or research courses and/or to maintain a community of experienced users who can be a resource in maintenance, training and/or supervision of undergraduates in scheduled laboratory courses. Such use is at the discretion of the lab manager and instrument custodian, and will be governed by the following policies developed and revised by the Laboratory Improvement Committee.

1. Appropriate PPE is **REQUIRED BY ALL PERSONNEL** for any access to the teaching labs. The minimum required PPE at all times includes a lab coat, safety glasses (or goggles for splash hazards), long pants or skirt that completely cover the leg, and closed toed shoes. Long hair must be tied back. Appropriate gloves must be worn for chemical or physical hazards. Anyone without these WILL be asked to leave. Lab coats and gloves are available for use within the labs, but you must bring safety glasses.
2. **No one may work alone in STB**, to ensure safety and responsible usage. Users are responsible for ensuring that a second person is in the lab, or in an adjacent space within earshot, who will be able to provide assistance or call for help in the event of an emergency. This person must be USC faculty, staff, or student with appropriate general lab training but does not necessarily have to be an authorized independent user of the space. They must have appropriate attire and PPE as noted above.
3. Users of instruments are responsible for the safe and proper handling of chemicals in the laboratories. Such usage must be in accordance with the Chemical Hygiene Plan of the specific laboratory where the instrument is located. Users must properly dispose of any hazardous waste generated. **Any planned procedures that will use consumable supplies or generate hazardous waste must be discussed with/approved by the laboratory manager.**
4. Any access to the teaching labs, and the equipment in them, outside of scheduled classroom activities must be coordinated with the appropriate **laboratory manager** responsible for the space. **Usage must not occur when a scheduled laboratory class is in session** in that space.
    a. Second (main) floor laboratories: Dr. Way Fountain, fountaa@mailbox.sc.edu
    b. Third floor laboratories: Dr. Amy Taylor-Perry, taylora4@mailbox.sc.edu
    c. Fourth floor laboratories: Dr. Shannon Roberts, smroberts@mailbox.sc.edu
5. Before any person may become an authorized user, they must receive specialized, **instrument-specific training** on the use and operation of an instrument, and also review the **lab-specific Chemical Hygiene Plan** and receive all appropriate **lab-specific safety training** for the space in which the instrument is located. Users must also have completed all applicable **USC EHS training certifications** for the instruments and operations planned (EHS Lab Safety is required, and Hazardous Waste if any could be generated). Approved users will document this training by signing signature pages and adding copies of certificates to Chemical Hygiene Plan as noted below.
6. Authorized users may schedule the instrumentation in Table I through 25Live. (https://25live.collegenet.com/pro/sc#!/home/dash) Dr. Fountain is the scheduling authority for these instruments in 25Live. Users who have not previously scheduled an instrument may be asked to leave the laboratory if they are using it without prior coordination. Usage must be in accordance

with all training guidelines and safety policies. Users must document all usage and routine maintenance in the instrument logbooks as required.

7. The workflow to use the instruments in the teaching labs shall proceed in the following manner:
    a. First, a prospective user must ask the associated **instrument custodian** for permission to use an instrument.
    b. If approved, the prospective user will get instrument specific training from the instrument custodian (See Table I).
    c. Once trained, the prospective user will **read and sign** the laboratory-specific Chemical Hygiene Plan (in Section 11), **add copies of their EHS training** certificates to Section 12 of the CHP, and **add their name to the lab-specific safety training and instrument-specific training rosters** included with the CHP. The instrument custodian will initial the instrument specific training showing approval.
    d. Upon completion and approval of training:
        i. The instrument custodian will email Dr. Fountain to indicate that the user has been trained and may request instrument time
        ii. The instrument custodian (NOT the student) will email Dr. Taylor-Perry to give the user key-card access to the appropriate lab. Access will be granted on weekdays only, and will expire December 15th for Fall terms, May 15th for Spring terms and August 15th for Summer terms. Access can be renewed if needed, by asking the instrument custodian to request renewal.
        iii. If not already a member, the user should be added to the COTEAM-CHEM-STB-ADV-LAB-INSTRUMENTS Teams Channel so that they may be notified of any instrument-specific or building-wide issues. Email Dr. Fountain, Dr. Taylor-Perry, or Dr. Greytak to be added.
    e. Approved users should inspect the schedule for a specific instrument in 25Live, and either enter a reservation request directly or email Dr. Fountain to request a time. Dr. Fountain will review the request for approval.
    f. Failure to adhere to these policies, general or lab-specific CHP guidelines, and operation and logbook policies for instruments will result in loss of access.
8. While this policy enables access to instruments by graduate and undergraduate students enrolled in Chemistry and Biochemistry research courses, the priority of laboratory managers and instrument custodians is to support the availability of the space and instruments for use in scheduled laboratory classes.

Table I: Instruments Available: blue shading not yet visible in 25Live. Instrument locations, availability, and custodians are subject to change. An up-to-date version of this table will be maintained on the Teams page (General channel / Files tab).

Location Name	***Location Formal Name***	***Instrument Custodian***
213C TOC	SHIMADZU Total Organic Carbon Analyzer located in Science and Technology Building 213C	Dr. Min Zhang
213B CHI 611E 1	CHI 611E Electrochemical Analyzer 1 located in Science and Technology Building 213B	Dr. Min Zhang
213B CHI 611E 2	CHI 611E Electrochemical Analyzer 2 located in Science and Technology Building 213B	Dr. Min Zhang
213B CHI 611E 3	CHI 611E Electrochemical Analyzer 3 located in Science and Technology Building 213B	Dr. Min Zhang
213B CHI 600E	CHI 600E Electrochemical Analyzer located in Science and Technology Building 213B	Dr. Min Zhang
213B Vernier UV/Vis 1	213B Vernier Fluorescence-UV/Vis 1 located in Science and Technology Building 213B	Dr. Min Zhang
213B Vernier UV/Vis 2	213B Vernier Fluorescence-UV/Vis 2 located in Science and Technology Building 213B	Dr. Min Zhang
213B Vernier UV/Vis 3	213B Vernier Fluorescence-UV/Vis 3 located in Science and Technology Building 213B	Dr. Min Zhang
213B Vernier UV/Vis 4	213B Vernier Fluorescence-UV/Vis 4 located in Science and Technology Building 213B	Dr. Min Zhang
213B Vernier UV/Vis 5	213B Vernier Fluorescence-UV/Vis 5 located in Science and Technology Building 213B	Dr. Min Zhang
213B Vernier UV/Vis 6	213B Vernier Fluorescence-UV/Vis 6 located in Science and Technology Building 213B	Dr. Min Zhang
213C GCMS	GC-MS located in Science and Technology Building 213C	Dr. Way Fountain
213C ICPOES	ICP-OES located in Science and Technology Building 213C	Dr. Way Fountain
213C LCMS	LC-MS located in Science and Technology Building 213C	Dr. Way Fountain
213C LIBS	LIBS located in Science and Technology Building 213C	Dr. Way Fountain

Provisional STB Instrument Use Policy: Developed 2020-02-26, Revised 2025-04-25

Location Name	***Location Formal Name***	***Instrument Custodian***
213C XRF	Quant'X XRF in Science and Technology Building 213C	Dr. Way Fountain
213C Nicolet 6700 1	Nicolet 6700-1 located in Science and Technology Building 213C	Dr. Way Fountain
213C Nicolet 6700 2	Nicolet 6700-2 located in Science and Technology Building 213C	Dr. Way Fountain
213C Vernier UVVIS 1	Vernier UV-VIS-1 located in Science and Technology Building 213C	Dr. Way Fountain
213C Vernier UVVIS 2	Vernier UV-VIS-2 located in Science and Technology Building 213C	Dr. Way Fountain
213D Cary 5000	Cary 5000 located in 1112GR 213D	Dr. Way Fountain
213D LabRam	LabRam located in 1112GR 213D	Dr. Andrew Greytak
213D Nicolet 6700	Nicolet 6700 located in 1112GR 213D	Dr. Andrew Greytak
213D 3Flex	Micromeritics 3Flex surface area analysis system in STB 213D	Dr. Andrew Greytak
213D DSC	Perkin Elmer DSC8000 differential scanning calorimeter in STB 213D	Dr. Andrew Greytak
219 DeltaFlex	DeltaFlex located in Science and Technology Building 219	Dr. Andrew Greytak
219 FluoroMax	FluoroMax located in Science and Technology Building 219	Dr. Andrew Greytak
411 60 MHz NMR	60 MHz Benchtop Proton NMR Spectrometer, STB 1112GR 411	Dr. Shannon Roberts
416 60 MHz NMR	60 MHz Benchtop Proton NMR Spectrometer, STB 1112GR 416	Dr. Shannon Roberts
414 60 MHz NMR	60 MHz Benchtop Proton NMR Spectrometer, STB 1112GR 414	Dr. Shannon Roberts
414 IR Thermo Scientific Nicolet iS10	IR Thermo Scientific Nicolet iS10, STB 1112GR 414	Dr. Shannon Roberts
411 IR Thermo Scientific Nicolet iS5	IR Thermo Scientific Nicolet iS5, STB 1112GR, 411	Dr. Shannon Roberts
416 IR Thermo Scientific Nicolet iS5	IR Thermo Scientific Nicolet iS5, STB 1112GR, 416	Dr. Shannon Roberts
418 IR Theromo Scientific Nicolet iS5	IR Thermo Scientific Nicolet iS5, STB 1112GR, 418	Dr. Shannon Roberts
411 Vernier GC Plus	Vernier Mini GC Plus Gas Chromatograph, STB 1112GR, 411	Dr. Shannon Roberts
414 Vernier GC Plus	Vernier Mini GC Plus Gas Chromatograph, STB 1112GR, 414	Dr. Shannon Roberts
416 Vernier GC Plus	Vernier Mini GC Plus Gas Chromatograph, STB 1112GR, 416	Dr. Shannon Roberts
418 Vernier GC Plus	Vernier Mini GC Plus Gas Chromatograph, STB 1112GR, 418	Dr. Shannon Roberts