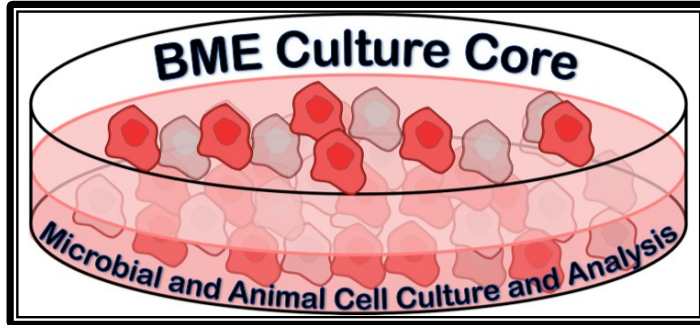


# BME Culture Core Service Center Information



## **BME Culture Core Service Center: Microbial and Animal Cell Culture and Analysis Service Center Policies**

### **Welcome to the BME Culture Core!**

The BME Culture Core (BMECC) is available to all UNC system investigators and collaborators. It is intended to provide an economical option for researchers who have a temporary or limited need for culture, wet lab and tissue handling facilities. The BMECC includes separate microbiology and animal cell culture laboratories, a general purpose wet lab with chemical fume hood, space for dissection of larger tissues, and histology equipment for both paraffin embedded and frozen samples. Researchers registered to use the BMECC have access to all rooms and listed equipment. Common consumable supplies are provided.

The BMECC is located on the 4<sup>th</sup> floor of Engineering Building III on NCSU's Centennial Campus, and includes the following laboratories:

Cell Culture Rm. 4201A  
Wet Lab Rm. 4201B  
Microbiology Rm. 4321B  
Dissection and Tissue Processing Rm. 4321A  
Histology Rm. 4321  
Equipment Room Rm. 4413

Both the Cell Culture and Microbiology Laboratories provide BSL-2 containment, suitable for handling human cells/tissues and Risk Group 2 microorganisms.

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# BME Culture Core Service Center Information

## **Facilities and Equipment Details**

### **>Microbiology Suite Rms 4321, 4321 A&B: Culture and handling of microorganisms BSL-1 & BSL-2; Tissue Handling and Mixed Cultures**

Central prep room (shared with histology) and two separate interior culture rooms, 700+ sq. ft. total;

#### **Equipment:**

Chemical fume hood;  
Flammables storage cabinets (2);  
Water deionization system (18 megohm);  
Nuair model 425-600 6 ft class II type A2 biological safety cabinet,  
Thermo model 1300 4 ft class II type A2 biological safety cabinet,  
Nuair model NU-5510 incubator with CO2 option & sanitize cycle;  
Additional incubators customizable for different temperatures or isolation;  
AccuSpin Micro 17 centrifuge;  
pH meter;  
Denver Instrument XP-300 top loading and TP-64 analytical balances;  
New Brunswick Scientific I Series 24 rotary shaker/incubators (2);  
Sorvall ST 40R benchtop refrigerated centrifuge;  
Isotemp undercounter ULT -86°C freezer 3.6 cu. ft.;  
Isotemp model 210 water bath  
Refrigerator/freezer standard combination unit  
Environmental chamber (variable temp)  
Nikon TS100 Inverted Microscope with camera  
Leica EZ4D Stereo Zoom Microscope with camera  
Dissection table with drain and H/C running water

### **>Histology - Room 4321 (217 sq. ft.; shared with microbiology prep)**

#### **Equipment:**

Chemical Fume Hood  
Flammables storage cabinet  
Fisher Histo Center paraffin tissue processor;  
Leitz 1512 rotary microtome;  
Thermo Scientific HN 525NX Cryostat  
Leica EZ4D stereo zoom microscope;  
Warming plates and staining sets

### **>Cell Biology 4201A: Animal Cell Culture Facility, BSL-1 & BSL-2**

236 sq ft., enter through 4201.

#### **Equipment:**

# BME Culture Core Service Center Information

Sorvall Legend RT benchtop centrifuge;  
Leica DMiL inverted fluorescence microscope with heated stage and QImaging  
Micropublisher 3.3 cooled RTV CCD color camera;  
Nuaire model 4750D CO2 incubator;  
Fisher Scientific model 3530 CO2 incubator;  
Nuaire model NU-425-600 class II type A2 6 ft biological safety cabinet;  
Thermo Fisher model 1385 class II type A2 4 ft biological safety cabinet;  
Deionized water system (18 megohm);  
Tecan GENios microplate reader (fluorescence, luminescence and absorbance);  
Waterbath (37°C);  
Liquid nitrogen cryostorage unit (located in Rm 4413)

## >Wet Lab 4210B: General Chemical Prep

140 sq ft, enter through 4201

### Equipment:

Flammables storage cabinet  
Chemical Fume Hood  
Thermo biomate3 spectrophotometer;  
Mettler-Toledo AB104 micro balance;  
Denver Instruments APX-402 top loading balance;  
Accumet AB15 pH meter;  
Thermo EC570-90 power supply, horizontal and vertical gel electrophoresis systems; Owl semi-dry blotting system;

## >Equipment Room 4413 (475 sq. ft)

(Note: Autoclave and ice machine available to BME researchers without charge)

### Equipment:

Steris Prevac Steam Sterilizer 26"x37.5"x48" interior dimensions  
Anprolene AN74i ethylene oxide sterilizer 12"x12"x24" interior dimensions  
Revco -86 chest freezer model ULT1090 10.3 cu. ft.;  
Hoshizaki flaked ice machine  
Standard combination refrigerator-freezer unit:  
Flammables refrigerator/freezer combination unit;  
Baxter DX-61 Drying Oven  
Lyophilizer

## >4° C Walk-in Environmental Chamber (Cold Room): Rm 4210

(Note: cold room available to BME researchers without charge)

Environmental Specialties Inc., Model ESI 9-10 range 4-37° C  
Suitable for storage of non-hazardous materials and for performing laboratory protocols requiring reduced temperature.  
No hazardous/flammable or living materials may be stored in the cold room.

# BME Culture Core Service Center Information

## **General Policies**

Prospective users should contact Susan Bernacki (SHB) [shbernac@ncsu.edu](mailto:shbernac@ncsu.edu) for an initial consultation regarding the proposed work.

The BMECC operates under a self service model. Registered users reserve time in the various laboratories through Google Calendar, and access the rooms via Wolfpack One Card and/or a keypad code. After orientation and initial training on desired equipment (up to 5 hrs per user), individual investigators and/or students are responsible for conducting their own experiments, although BMECC staff are typically available, and users should seek advice if they have questions or need any assistance with equipment.

Safety items including gloves, labcoats and safety glasses, and common consumable labware and supplies (e.g. pipets, culture flasks) are provided by the BMECC. Consult with SHB regarding individual consumable needs.

To obtain access to the BMECC laboratories, users must:

- \*Complete required online EHS safety training modules
- \*Complete online BME Culture Core Registration Form
- \*Submit a Billing Authorization Form signed by PI
- \*Receive an in person BMECC safety orientation

A version of the form is provided below for reference, however, users must complete the online form. Request link from Susan Bernacki, [shbernac@ncsu.edu](mailto:shbernac@ncsu.edu).

Note: Please inform SHB of any visitors or guests who may accompany registered users. Trainees and lab partners who will participate in research activities must receive a safety orientation, although they are not required to complete the user registration form if they will be accompanied by a registered user at all times.

Note: Faculty or other supervising PIs must also complete applicable EHS online safety training modules, even if they will not be accessing the BMECC, or engaging in laboratory activities.

All chemicals/reagents that will be brought into the lab must be listed on the form. A separate Chemical Form must be completed (online) for hazardous materials. Any hazardous materials and all organisms/living materials must be discussed with SHB, and appropriate storage and disposal arranged. All primary and secondary reagent containers must be labeled with date, contents and names of both researcher and PI.

Any equipment brought into the BMECC must be listed on the BMECC Registration Form, and space and safety requirements discussed with SHB.

# BME Culture Core Service Center Information

**Important note: Safety glasses are required AT ALL TIMES in ALL BMECC ROOMS.** Any user found not wearing safety glasses will be issued an official warning. On second offense, the user **will lose access to the BMECC.** No refunds of registration or other fees will be made.

## Record Keeping

BMECC use must be recorded **DAILY** on the appropriate Google Calendar. Individual users are responsible for reporting all time used.

The Google Calendar entries comprise the official record and will be used by BMECC for billing purposes. Include a brief description of the activity, for example, “cell culture” or “cryosectioning” in the title or description box

***By NCSU policy, daily reporting of all Service Center use is strictly required.*** In order to maintain a self-service model, with individual access to the labs, user compliance is necessary.

## What types of use must be recorded?

All visits, including brief visits, that involve performing or monitoring laboratory procedures or experiments, or any use of equipment, must be recorded. This includes brief visits to initiate, move or examine cultures. Multiple visits in a single day may be logged as one visit, with the total time recorded. Only time spent physically present in the lab is recorded, for example, a 1 hr centrifuge run, with the researcher present for 10 min at the beginning and 10 min at the end to load and unload the samples, would be logged as 20 minutes. Similarly, for culture activities, only the time actually spent in the laboratory is recorded.

Visits to BMECC labs to check on supplies, retrieve items left in the rooms, or turn equipment on for pre-cooling/warmup do not need to be recorded. Also, visits for the sole purpose of filling a container with DI water for use in another lab are not charged and do not need to be recorded.

# BME Culture Core Service Center Information

## **Fees and Billing Information**

The BME Culture Core is available to all UNC System researchers and collaborators for a uniform hourly use fee, which includes:

- >Access to all BMECC rooms and use of all equipment
- >Common consumables including gloves and paper towels
- >Standard disposable cultureware including serological pipets, culture flasks and Petri dishes
- >Limited supplies of standard chemicals and reagents
- >Training in operation of equipment\*
- >Assistance with project development/experimental design\*

Culture media and specialty reagents and supplies must be provided by the user. After initial orientation and training, individual investigators and/or students will be responsible for conducting their own experiments.

The BME Culture Core facilities are available without charge for BME classes, including Senior Design, and also for NCSU course development and support activities. However, all research use of the BME Culture Core, including undergraduate research for credit (e.g. BME498), and graduate research will be subject to the standard service center rates. The autoclave, -80°C freezer, drying oven and ice machine in Rm. 4413 are available to BME investigators without charge, although research activities conducted in 4413 will be charged at.

\*The BMECC does NOT provide fundamental training in basic cell culture, microbiology, histology or other common laboratory techniques. Assistance with project development in excess of 5 hrs per user per calendar year will be billed at the standard hourly rate, not subject to the PI maximum.

### **Billing Policies:**

The basic hourly rate for UNC system users is \$70.60/hr., billed in 15 minute increments, with a 15 minute minimum per day. The access setup fee for new users is \$211.80 (3 hrs), which covers administrative costs plus safety training and laboratory orientation. Access must be renewed annually at \$70.60 (1 hr). External customers should inquire regarding rates.

The maximum use charge per principle investigator or faculty sponsor per calendar year (Jan. 1 – Dec. 31) will be \$1500 for 1 or 2 users, including access setup fees. Additional users under the same PI will be charged a maximum of \$750 per user per year. Training or individual project assistance in excess of 5 hrs per user will be charged at \$70.60/hr, not subject to the PI maximum. Investigators who exceed 20 hrs of usage may be requested to contribute to the supply of heavily used standard consumable items.

Trainees/observers and lab partners may accompany a registered user at no charge, but may not access the labs independently, and may not be alone in any of the BMECC rooms, even briefly.

Invoices are prepared twice a year, in July and January for the prior six months (Jan 1-Jun 30 and July 1-Dec 31). Billing schedule may be modified as necessary to accommodate individual funding situations.

BME Culture Core Registration Form

To request access, or for additional information, please contact BMECC Director Susan H. Bernacki, shbernac@ncsu.edu.

The form below is provided for information only; To register, please complete the online form.

## Joint Department of Biomedical Engineering UNC-NCSU BME Culture Core Registration Form

Please read BME Culture Core Information before completing this form.  
Please complete form online, including uploading the REPORTER Training Summary

**Name** \_\_\_\_\_

**Today's Date** \_\_\_\_\_

Campus ID Number

Unity ID

Email

Phone number: Will it accept text messages?  Yes  No

Whom should we call if you get hauled off in an ambulance?

Name and relationship Phone

**Status:**

- Undergraduate Student
- Graduate Student  M.S.  Ph.D.
- Post-doc
- NCSU/UNC Staff
- Faculty
- Other (explain) \_ \_

Beginning (mo \_\_\_\_\_ /yr \_\_\_\_\_) and Anticipated End Dates (mo \_\_\_\_\_ /yr \_\_\_\_\_) at NCSU

Research Advisor/PI/Faculty Sponsor (for non-faculty):

Department and Program:

**Project Title(s):**

**\*Facilities requested (check all that apply):**

- Microbiology/Dissection 4321
- Cell Biology 4201A
- Wet Lab 4201B
- Equipment Room 4413
- Histology Room 4321
- Walk-in Cold Room 4210

## BME Culture Core User Registration

### Date Access Approved

### Approved by (initials)\*Estimated Project

**Dates:** Please indicate estimated start and completion dates for the project, plus estimated number of hours per week. If multiple rooms will be used, please provide appropriate breakdown.

Start:            End:

---

Approx. Hrs per week by room (for planning purposes only):

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**The online training modules below are required for access to the BMECC. Modules are available through the EHS training page: <https://ehs.ncsu.edu/training/> , or by typing the course number into the search bar at the REPORTER website: <https://reporter.ncsu.edu/index.html>**

*Some training modules require a safety plan number. Use the number for the room where most of the planned work will be done. List Susan Bernacki [shbernac@ncsu.edu](mailto:shbernac@ncsu.edu) as supervisor.*

#### Safety Plan Numbers:

#1479 Rms 4201A & B: Cell Culture Lab and Wet Lab

#1075 Rms 4321, 4321A & B: Histology, Microbiology and Tissue Processing

#1077 Rm 4413 (Equipment Room) and Rm 4210 (Cold Room)

- >>EHPS-LS103 NC State Safety Orientation Checklist (\*see important note)
- >>EHPS-HW101 Laboratory Chemical Waste Management Training (since Feb. 6, 2018)
- >>EHPS-LS104 Chemical Hygiene Plan
- >>RES-COMPLI-IBC Biosafety Orientation
- >>EHPS-BS201 Laboratory Biological Safety Training
- >>EHPS-BS100-001 Bloodborne Pathogen Training -Must be within 12 months, and renewed annually
- >>EHPS-LS300 Cryogenics Safety Training
- >>EHPS-LS400 Formaldehyde Safety Training
- >>EHPS-BS300: Autoclave Use and Safety Awareness

**\*Important note:** The Safety Orientation Checklist, AKA Manager's Safety Checklist is required by NCSU for ALL lab personnel when they begin work in a new lab. It is completed together with the PI, lab manager or other supervisor for that laboratory. All BMECC users must complete this checklist with the supervisor of their primary laboratory prior to receiving access to BMECC rooms.

A PDF of your Training Summary (available under My Account in REPORTER) is required for the online registration form. Compare your Training Summary to the example on the last page of this form to verify that all requirements are complete. If you have completed other courses on REPORTER not relevant to lab work, please omit them from the PDF. Do not submit individual certificates. All online training modules must be completed prior to the in person safety orientation.

#### \*Date of BMECC Service Center Safety Orientation



BME Culture Core User Registration

**\*Equipment:** List existing equipment items that will be used (see BME Culture Core Information for available equipment)

List any items you plan to move into the facility:

**\*Project Specific Training:** Briefly describe your **familiarity with the planned activities**. What training will you require? Will other members of your research group be providing training and/or supervision? Introductory training on operation of existing equipment will be provided as necessary, however, technical skills training, including histology, cell culture and biochemistry skills, and overall supervision is the responsibility of the sponsoring PI.

Specific Training:

\*Describe any **hazards** associated with planned activities

Hazards:

\*List any **organisms, tissues, cell lines or biological products** to be used, including biosafety level if applicable. A Biologicals Form must be submitted for each material.

\*List **all chemicals/reagents** that will be stored in the BMECC. Complete a Chemical Form for any hazardous materials. A Chemical Form is required for hazardous materials that will be used in the BMECC labs, even if they are stored elsewhere.

\*Include a brief **Project Description** describing the project, with focus on specifically what will be done in the BMECC labs. If you are continuing a project already described on another user's form, request that user to provide you with the description, and copy/paste it below. Briefly describe your activities on the project.

Narrative:

## **BME Culture Core Chemical Form**

A separate form must be completed for EACH hazardous chemical (or reagent/kit). Please attach a digital version of the item description from the supplier's website.

User name

PI name

Today's date

Chemical/reagent/kit name:

Room number/facility name:

Storage Location: (shelf, hazardous chemical cabinet, refrigerator etc.)

CAS number(s):

Physical state (liquid, solid, gas):

Size and Type of container (glass/plastic bottle/jar etc.):

Storage requirements:

Hazards:

Disposal requirements:

## **BME Culture Core Biologicals Form**

Complete a separate form for EACH biological material, tissue, cell line or microorganism, including non-hazardous/BSL-1 organisms. All growing or stored cultures MUST be labeled with user and PI name and date. For commercially obtained materials, attach a digital version of the product information from the supplier.

User name

PI name

Today's date

Room number/facility name:

Biological name/description:

Risk Group/BSL handling:NA

Is a Biological Use Agreement required? NA

See Biosafety Manual at <https://ehs.ncsu.edu/> (Biosafety Tab) for guidance

BUA number and approval date (please provide copy of BUA)

Will liquid nitrogen or freezer storage be required for cell lines or microbial stocks?  
NA

## **BME Culture Core Required Training**

### Example Training Summary Submit PDF with Registration Form

Example Training Summary for BMECC



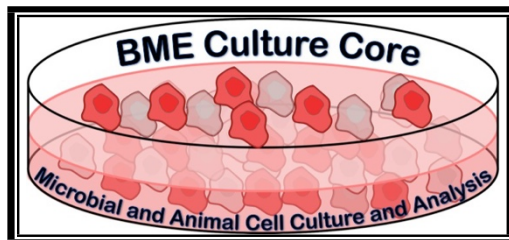
Printed Date: Tue  
05/14/2019

#### **Training Summary**

Your Name Here  
yourname@ncsu.edu  
Engineering Building III (EB3)  
Raleigh, NC 27695

<b>Course</b>	<b>Final Attendance</b>	<b>Date Completed</b>	<b>Instructional Hours</b>
Autoclave Use and Safety Awareness	Complete	05/13/19	0.50
Chemical Hygiene Plan	Complete	10/31/18	2.00
Formaldehyde Safety Training	Complete	10/31/18	1.00
Bloodborne Pathogen Training	Complete	10/31/18	1.00
Safety Orientation Checklist	Complete	05/21/18	1.00
Laboratory Chemical Waste Management Training	Complete	02/15/18	1.00
Laboratory Biological Safety Training	Complete	12/29/17	1.00
Biosafety Orientation	Complete	10/05/17	0.25
Cryogenics Safety Training	Complete	08/28/17	0.25

**(end of registration form)**



**BILLING AUTHORIZATION FORM Jan. 1 – Dec. 31, 2019**

Principal Investigator >>		PI email >>	
Department/College >>		Campus Box >>	
Accounting contact >>		Accounting email >>	
Accounting signature >>		Accounting phone >>	
Authorized User(s) >>		User Email(s) >>	
Project Acct or ID# >> (please complete a separate authorization for each account number)		Maximum Amount >> (Amounts shown are calendar year maximums. Change if necessary.)	_____ \$1500 (1-2 users) _____ \$750 (each additional user) _____ enter total authorized amount
Begin Date (if other than Jan 1) >>		End Date >>	Dec 31, 2019

The written or typed signature of the Principal Investigator below authorizes the Biomedical Engineering Culture Core (BMECC) Service Center to bill up to the maximum amount indicated for charges incurred.

The rate for all UNC system users is \$70.60/hr, billed in 15 minute increments. A new user Setup Fee of \$211.80 (3 hrs) is assessed when access is approved, independent of use time logged in the BMECC. Annual access renewals are \$70.60 (1 hr) per user, assessed on the anniversary of the initial setup. External customers should inquire regarding rates.

For UNC system users, the maximum charge per principle investigator or faculty sponsor per calendar year (Jan 1 – Dec 31) is \$1500 for 1-2 users, including setup and renewal fees. Additional users under the same PI will be charged a maximum of \$750 per user per year. Training or individual project assistance in excess of 10 hrs for 1-2 users and 5 hrs for each additional user will be charged at \$70.60/hr, not subject to the maximum. See BME Culture Core Information document for details. Please contact BMECC Director, Susan Bernacki, [shbernac@ncsu.edu](mailto:shbernac@ncsu.edu) with any questions.

For ongoing users, a new authorization should be submitted each calendar year.

\_\_\_\_\_ PI Signature \_\_\_\_\_ Date \_\_\_\_\_