

Student Handbook

Institute of Biomedical Engineering, UNB

May 2025

Introduction

Welcome to the Institute of Biomedical Engineering!

The purpose of this handbook is to provide you with information to help you get oriented to the Institute and help to make your time here enjoyable and effective.

Your comments at any time concerning ways to make the Institute a more effective research environment can be addressed to the Director, Associate Director, or Graduate Student Liaison Officer.

The Institute of Biomedical Engineering is a multidisciplinary team of scientists, clinicians, engineers, and students working on collaborative research projects. We value teamwork, professionalism, and a high standard of excellence.

Vision

We aspire to be an institute of influence through excellence and innovation in research and clinical care in mobility and rehabilitation engineering to enable positive change across our local and global communities.

Mission

To:

1. Inspire and educate our people to become problem solvers and leaders in the world,
2. Undertake interdisciplinary research and clinical care that addresses key challenges within the field of mobility and rehabilitation engineering, and
3. Translate findings into practice that creates meaningful impact.

Core Values

1. Integrity, Empathy, and Respect
2. Equity, Diversity, and Inclusion
3. Curiosity, Engagement, and Collaboration
4. Future Generations

History

Professor Robert N. Scott founded IBME and he served as its first Director from 1964-1990. The IBME building was named R.N. Scott Hall in 2002. The IBME was founded in the context of a surge of congenital deficiencies caused by medication administered during pregnancies to alleviate morning sickness symptoms in the late 1950s/early 1960s. In the wake of this incident, there was a significant and compelling need to design better prosthetic devices. The IBME focused on providing myoelectric device electronics and control strategies. They went on to offer an annual training session for clinicians on how to use myoelectric prostheses (which has evolved into the internationally-attended Myoelectric Controls Symposium) and did extensive research in pattern recognition and signal processing of myoelectric signals. Under the direction of Dr. Ed Biden [1990-2000], the Institute continued its growth in these areas and extended to include biomechanics expertise and international outreach. Dr. Bernie Hudgins was the next Director [2000-2012], and under his leadership, the Institute took on a series of high-profile development projects with collaboration from industry. IBME also broadened its scope to look at human-machine interfaces and outcome measures. Under the leadership of Dr. Kevin Englehart [2012-2018], IBME refocused its activities more towards its roots in research while at the same time broadening its vision to encourage greater collaboration with industry and identify new platforms and applications for which IBME can provide expertise. Dr. Jon Sensinger is the current director, and Dr. Erik Scheme is the current associate director.

A more in-depth history of the Institute, written by Prof. Scott, is found on the Institute's [website](#).

People

A list of our faculty, staff, students, and affiliated faculty can be found on our website:

<http://www.unb.ca/research/institutes/biomedical/people.html>

In addition, it will be helpful to know various roles within IBME:

- Director (Jon Sensinger). The director is responsible for guiding the vision, processes, and practices of the Institute, with direct links to most Institute staff; and indirect links to faculty and students. Affiliated Institute faculty and students are expected to contribute to the IBME process and culture, and it is the director's role to facilitate this participation and contribution, recognizing that many faculty and students affiliated with the Institute have dual roles (also being affiliated with a Faculty) and need to honour the expectations associated with both.
- Associate Director (Erik Scheme). The associate director augments the director's responsibilities in areas where the associate director has particular talent or interest; serves as an intermediary who can take a step back to objectively see if processes are working; and fills the role of the director at times when the director is absent.
- Office Manager (Christine Ritchie). The office manager is responsible for managing the research operations of the Institute and should be your first point of contact for any travel or supplies.
- Financial Manager (Kristel Desjardins). The financial manager is responsible for managing the financial accounts associated with the Institute. Many of the student stipends fall outside the jurisdiction of IBME (being cared for by departments), and thus IBME's financial manager cannot directly access or fix problems with those accounts, but all affiliated IBME faculty/staff/students are encouraged to keep the Financial Manager in the loop regarding being paid, so that they can reach out to the appropriate departments to highlight a gap or propose a solution.
- Graduate Student Liason (Kristel Desjardins). The graduate student liaison coordinates with our graduate students to ensure they are aware of training opportunities and to facilitate events like the journal club. The graduate student liaison also looks to create processes and practices that enable graduate students to thrive.
- Building Safety Officer (Katie Campbell). The Building Safety Officer is responsible for ensuring that the necessary steps are taken to correct any safety hazard. Any safety hazard should be reported to the Building Safety Officer.
- Level 1 officer (Katie Campbell). The Level 1 officer is responsible for directing all software and technology requests. These requests should be made regarding [this form](#).
- Social committee chair (Andrew Doucet). This person chairs the social committee, which oversees monthly social events; research jams; and opportunities to explore to engage with a variety of cultures.
- IBME Ethics Review Committee chair (Jon Sensinger). The chair of the ERC is responsible for overseeing the policies and procedures of the ERC, as well as for providing approval of studies reviewed by the ERC prior to their submission to UNB's Research Ethics Board.
- IBME Ethics Review Committee coordinator (Katie Campbell). The coordinator of the ERC is responsible for coordinating submissions to the ERC, finding internal reviewers, and tracking the status of individual submissions and noted issues that should be resolved in the annual ERC meeting.

Processes

Dashboard

Our [dashboard](#) is a one-stop shop for upcoming events, templates, processes, and tracking. Please bookmark it, and take a look at our various templates and processes.

Fire Regulations

Please take a few moments to read the fire regulations (posted in Rm 101, Rm 102, and the reception area on the 2nd floor).

All persons must leave the building immediately upon hearing the local fire alarm and wait outside until authorized to enter by fire or security personnel. **Our designated meeting area is in front of the Bank/Bookstore building next door.**

Safety

Any accident should be reported immediately to both the Building Safety Officer and the Campus Safety Coordinator (Phone 506-453-5075). An incident report should be filled out as soon as possible with the Office Manager. Any accident occurring outside normal hours should be reported to UNB Security (Phone 506-453-4830).

Scent-Free Policy

The Institute has a scent-free policy. Our personnel and patients may have sensitivities to scented perfumes, colognes, body sprays, and grooming products. Chemicals in the fragrances can trigger reactions ranging from headaches to heart palpitations in people who are sensitive to them, making it difficult for them to work effectively.

Human Experimentation

Training

Before doing any experiments, all IBME staff and students must:

- 1) Successfully complete [TCPS2 core training](#).
- 2) Successfully complete IBME's Human Research Training, offered twice per year.

Experimenter as Subject

In cases where the experimenter is also the subject of the experiment, it is not necessary to acquire ethics approval or file a consent form if the research is minimum risk as assessed by a faculty member. However, there must be another person in the building and aware of the research, for safety purposes.

Ethics Approval

It is a minimal requirement of ethical research that no experiment be conducted on a human subject without approval from the University Research Ethics Board.

The [process](#) to do this and any associated [templates](#) are available on our dashboard. Once a study is ready, it should be submitted to IBME's Ethics Review Committee coordinator.

Data Storage

All data that contains personal health information (subject names, photographs, videos, etc.) must be stored in the locked file cabinet in the Office Manager's office or a password-protected, encrypted folder on a computer. All data used on personal computers should use de-identified subject codes. Truecrypt (<http://www.truecrypt.org/>) is a free, open-source encryption package that can be used to encrypt photographs and videos.

No personal health information (including unencrypted pictures) may be stored on laptops or phones.

Intellectual Property

Intellectual property (including potential patents, copyrights, board layouts, and trade secrets, as well as others) is routinely created at the Institute of Biomedical Engineering. This property must be secured (e.g., filed with the government) before it is released. Please consult your supervisor or advisor before disclosing your work to any outside group (including class presentations, posters, interviews, and reports) to see if IP should be secured before the disclosure.

Some projects at IBME are funded by sources that require that intellectual property be assigned to the Institute, to have a single point of contact during negotiations with potential commercial licensees. Please ask your supervisor if your project falls under such a funding source.

Media

The Institute is frequently at the centre of attention of the media. It is important that the activities of the Institute are represented carefully and accurately. If you are asked to speak to the media, please contact your supervisor or the Director/Associate Director before doing so. If you are unexpectedly approached by the media and are asked to comment, please be sure that your comments are accurate and appropriate, and that it is clear that you are representing yourself, not the Institute.

IBME Activities

Tea/Coffee Break (daily)

Typically, around 2:45 p.m., we like to gather in the kitchen for a tea/coffee break. An announcement is made over the PA system to invite everyone downstairs). Some will bring their own coffee pods or tea bags.

Lunchtime walk (daily)

Several of us often go for a walk during lunch, nominally around 12:25pm. If anyone is going for a walk, they are encouraged to post it on the Teams "IBME lunchtime walk" chat.

Brown-bag Lunch (weekly)

IBME faculty, staff, and students meet weekly for lunch on Thursdays at noon in the IBME conference room. This is an informal gathering in which people bring their own lunch. It's a weekly chance to get to know everyone better. Once per month, the group discusses "Life after IBME", and once per month, there is a first-aid scenario.

Journal Club (bi-weekly)

The students conduct a bi-weekly journal club that covers recent high-profile articles, articles specific to 'student's work, and review / tutorial articles.

Biochats (bi-weekly)

Biochats is a Teams event hosted by students or faculty members where research is presented with an opportunity for questions and feedback from other IBME students, faculty and staff.

Social outings (monthly)

IBME's social committee plans an outing once per month. They try to choose a variety of activities regarding timing (inside / outside office hours), location (at IBME / elsewhere), cost (free, some cost incurred), and activity level (e.g., board games vs. kayaking). If you have any ideas for a social outing, please contact the Social committee's chair.

Research jams (1x per term)

IBME's social committee plans a research jam 3x per year (once per term). These day-long events are a great opportunity to work with different people, explore new topics and techniques; and make headway on important topics. Many staff and students participate; propose ideas they want to explore that day; and then break up into groups to work on them.

Cultural events (1x per term)

IBME's social committee plans an event once per term that enables everyone to explore a particular culture. There are many cultures within IBME, and these events are a good opportunity to appreciate our own culture and those of our team members.

Places

Building, Lab, and Equipment access

The Institute's front main and back entrances uses a card reader system. The front is automatically unlocked between 8:15 a.m. and 4:30 p.m., Monday to Friday, and locked at all other times. To enter the building outside of regular business hours, hold your UNB UCard up to the card reader, and the door will unlock. Graduate students can enter using their keycard 24 hours a day, seven days a week. Student interns and affiliated staff and faculty will have access between 7 a.m. and 8 p.m., seven days a week. If you forget your UCard and wish to enter outside of regular business hours, call **Security at 453-4830**, and they can let you in.

Only faculty, staff, and students enrolled within the Institute have access to the resources of the Institute. The Office Manager should be contacted if you are having access issues.

You incur direct personal responsibility for building security whenever you use the building outside normal regular hours. You must not admit unauthorized persons to the building and you must ensure that outside doors remain locked. You must ensure that exterior doors and first-floor windows are locked and that lights and equipment are turned off when you leave. Equipment capable of generating enough heat to cause a fire, such as electric kettles, coffee makers, soldering irons, battery chargers etc., require attention.

These considerations also apply if you in the building alone at the end of the day, or on other occasions, find yourself the last person leaving the building.

If specific equipment is to be left operating when the building is unoccupied, please ensure you affix a notice to the equipment indicating that it is to be left on. Such a notice should be signed (legibly) and include your phone number.

Any problem associated with building security after hours should be reported promptly to the UNB Security Office, either in person (Campus Operations Building 767 Kings College Rd.) or by telephone (from a campus telephone, ext. 4830 or a cell phone, 453-4830). During regular hours, contact any Institute staff or faculty.

To have appropriate protection in the event of an electrical accident, any work involving access to electric potentials in excess of about 50 volts is restricted to situations in which there are at least two persons in the building, and the second is made aware of the activity being carried out. Note that this policy is necessary both to protect the individual and to protect the Institute, which may be held liable for the consequences of an accident if adequate supervision is not ensured.

Lab access for research

Participant data collection for an approved REB shall happen only during office hours unless certain conditions are met. A decision-tree can be found on our [sharepoint site](#) and must be approved by the chair of the IBME Ethics Review Committee.

Research using the Stim cycle, Ekso, and CAREN should always have a trained PT or biomedical engineer present in the facility, regardless of participant type.

Atlantic Clinic for Upper Limb Prosthetics

The facilities for the Atlantic Clinic for Upper Limb Prosthetics are beyond the glass doors to the left of the main floor elevator. This hallway is considered a professional clinical space and is not to be used as a throughway to other parts of the building. If you are interested in prosthetics or have questions about the clinic or how it operates, you are more than welcome to talk to the clinic staff when they are not busy with patients.

Under no circumstances are tools or facilities of the clinic to be used unless:

- a) You have received shop-safety training. This training is available several times throughout the year through the Mechanical Engineering department. Please let your supervisor know you need to take this training, and we will coordinate with you regarding the next available session.
- b) You have been given permission after filling out the form described above;
- c) The Prosthetics Technician has confirmed that it is ok, at that point in time, to use the equipment. This decision can change hour-by-hour depending on what clinical activities are occurring within the clinic.

The front foyer and waiting room are used frequently by clinic patients. Please respect that this is an area where patients will be waiting and sometimes consulting with clinic staff by acting professionally. Information regarding patient identity or treatment within the clinic must be kept confidential.

The kitchen and playroom on the lower level are intended as patient training areas. If they are in use by clinic staff and patients, please be respectful and wait to use those areas if possible. If you need to access something in the kitchen when a patient is present, ask permission before entering. If you use the kitchen facilities, please ensure the space is tidy and clean when you leave. Wash any dishes, utensils, or surfaces so that the area is acceptable for patient use at any time.

If the playroom is used by your children or visitors, ensure toys are clean and put away before you leave. Toys are specifically purchased and maintained for training purposes for children learning to use a prosthesis.

Tech Lab

To maintain reasonable efficiency in the Institute, no tools or instruments are to be removed from the Tech Lab without the permission of the Research Engineer or Research Physiotherapist. Technical services, tools, and equipment will be available for student use upon request.

There are two workbenches in the Tech Lab designated for student use. If you require workbench space, please make arrangements with the Research Engineer.

Any equipment or tools borrowed from the electronics lab are to be returned immediately after use.

When the Research Engineer is not present the electronics lab equipment and tools are off limits unless given previous authorization.

Photocopier and Printing

General use of the photocopier and printers is permitted without charge. If a thesis or large report is to be photocopied, please consult the Office Manager first. Details of installing the Institute printers on your personal computer can be obtained from the Level 1 support staff.

Data Collection Laboratory

This lab may be reserved by faculty, staff, or graduate students. There is a Google calendar used to reserve the room. Because experiments often require long blocks of time, there is no formal limit on the duration of reservation. Your cooperation in keeping blocks reasonable is requested, however, in consideration of other users.

Several standard electrode lead sets are available; do not remove these from the lab. If your research requires special electrode/lead configurations, these will be provided after consultation with your supervisor. Please do not destroy general-purpose lead sets to create special ones.

Any maintenance, modification, or adjustment of lab equipment or software is the responsibility of the Project Engineer and should not be performed by any other individuals. Should any equipment or software appear to be working incorrectly, please notify the Project Engineer immediately.

Specialized lab equipment that is generally not stored in the bio-signals lab is available. Use of this equipment is by arrangement with your faculty supervisor.

CAREN System

Only trained operators may operate the CAREN system.

Level-0 operators must have a Level-2 operator in the building to use the system.

The CAREN system must be booked for use via our [CARE Reservations SharePoint](#).

Mobility Lab

Only trained operators may operate the ZeroG harness.

The mobility lab must be booked for use via our [CARE Reservations SharePoint](#).

ADL Lab

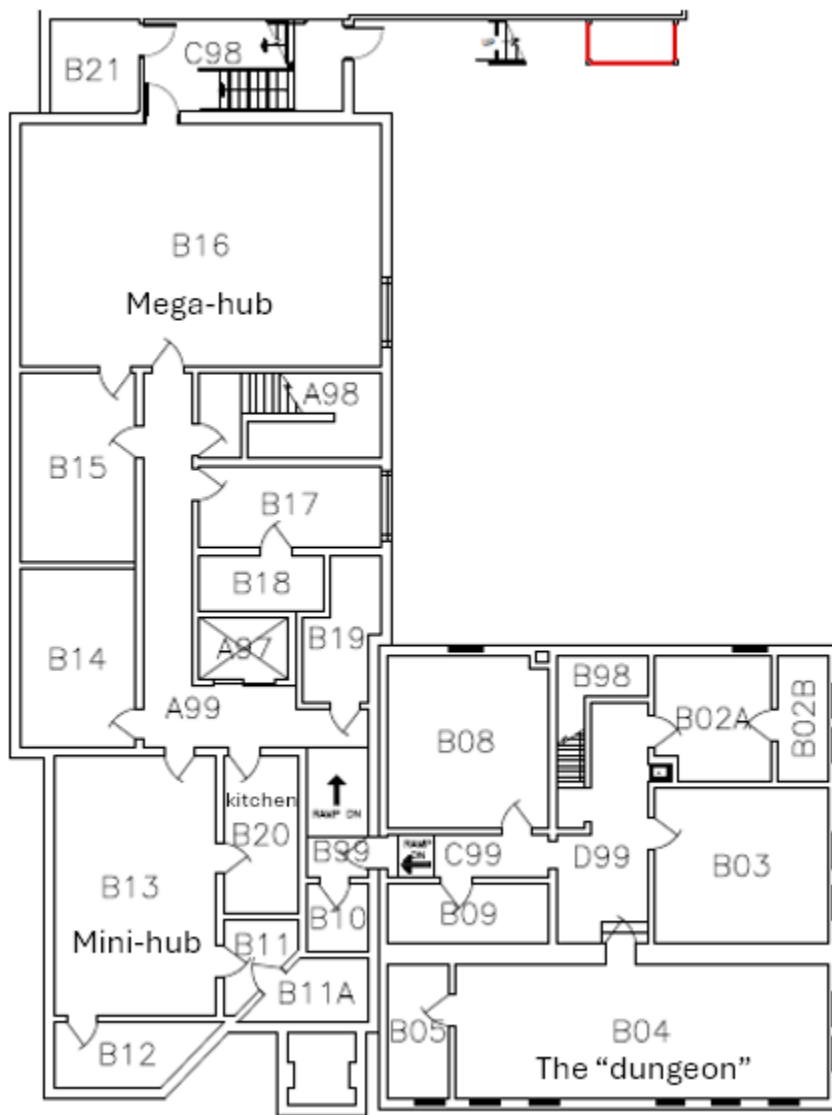
The ADL lab must be booked for use via our [CARE Reservations SharePoint](#).

Student Library

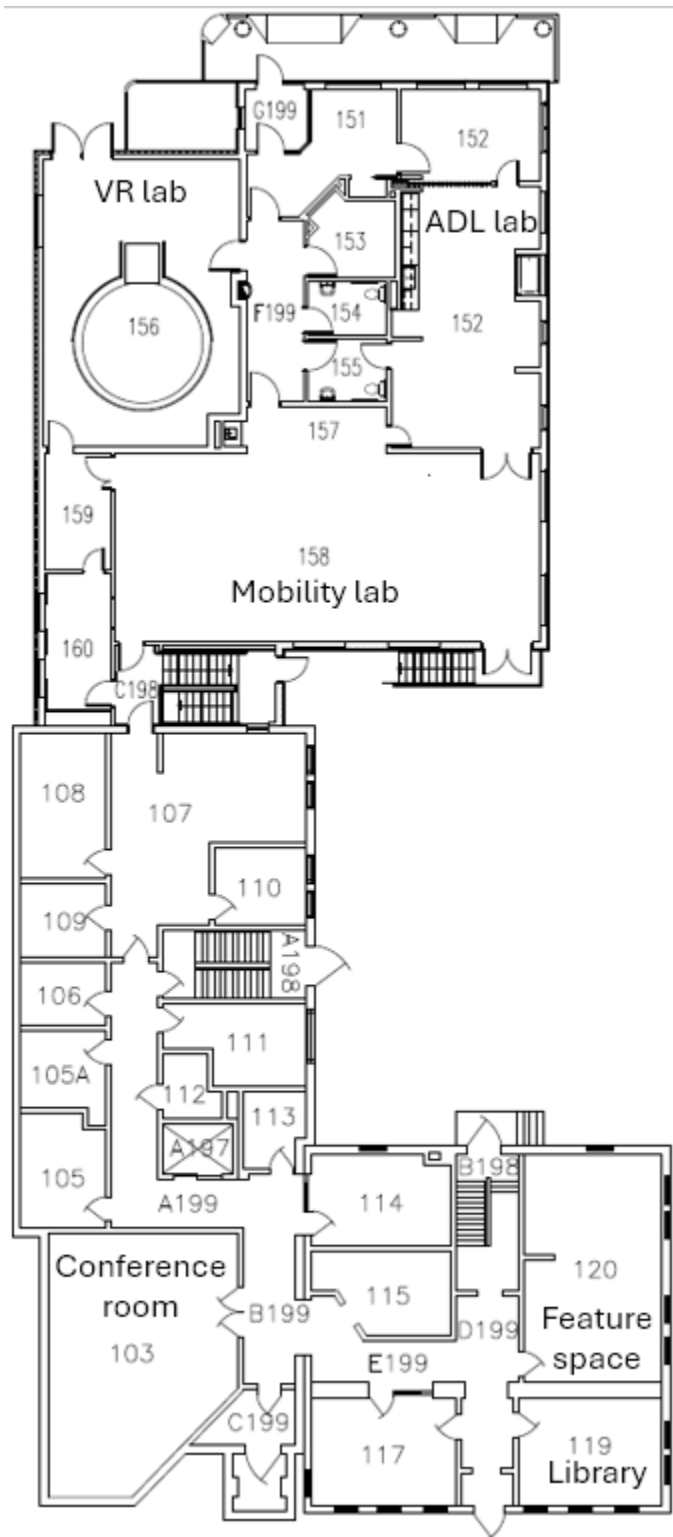
Students are encouraged to use our library (119). Please be quiet in this room. Feel free to check out a book.

Building Layout

Basement:



First floor:



Second floor:

