GRADUATE PROGRAMS IN PHARMACEUTICAL SCIENCES

Welcome

DEGREE OFFERED:

M.S.
Ph.D.
Pharm.D./Ph.D.
Participates in interdisciplinary Ph.D. program in CMB

ORIENTATION:

. The department strives to provide stipend support and tuition waiver for all graduate students.

. It is expected that you consider the pursuit of your graduate degree as being a full-time endeavor.

. It is not uncommon for laboratory work to require extended working hours and weekend work, as the situation demands.

. In many respects, you should consider yourself to be self-employed.

FACULTY ADVISOR:

Most important

The role of your advisor is to serve as your scientific mentor, to provide the resources for the accomplishment of your research projects, and to be your advocate during this process of your graduate education.

Any concerns that you are not comfortable sharing with your advisor should be taken to the department chair.

PROCEDURES:

First Year - endeavor to complete required core courses.

Graduate Student Comprehensive Examination: Once a year

To take the comprehensive exam, the student must have finished their core class work (i.e., Biochemistry 701 and 702, Applied Statistics (Stat 725), **Principles of Pharmacokinetics and Pharmacodynamics (PSCI 611) and Pharmacokinetics (PSCI 670).**

In the second year, during the third semester, each student selects an advisory committee, which consists of the thesis advisor, and three other faculty members out of which one (Graduate appointee) must be outside of the College of Health Professions.

Typically, coursework is completed in 1-1.5 years for MS candidates (**minimum 17 semester credits of letter-graded course**) and two years for Ph.D. (**minimum of 30 semester credits of letter-graded course - 18 must be at 700-level)** candidates,

leaving later years for full-time thesis research. The M.S. students must take at least 10 Cr and Ph.D. students 60 Cr, for research dissertation. The time to complete a graduate degree averages 2-3 years for the M.S. degree and approximately takes about 4-5 years for the Ph.D.

ADMISSION TO CANDIDACY FOR THE PH.D.:

(1). **Satisfactory performance in coursework with a min 3.0 GPA**

(2). **Satisfactory performance in Pharmaceutical Sciences Comprehensive Examination (NIH R21) format.**

(3). **Satisfactory defense of an original research proposal on a topic selected by the candidate and approved by candidate's Ph.D. advisory committee. The research proposal should be prepared in the NIH RO1 grants application format (http://www.nih.gov). The proposal should be approximately 15 pages including an abstract. The proposal should be submitted to Advisory Committee two weeks prior to scheduled examination.**

Following completion of dissertation research, the candidate must complete a written dissertation and an oral presentation to the department and advisory committee. **The written dissertation should be submitted to Advisory Committee two weeks prior to scheduled oral presentation. It is expected that the candidate will publish his/her results in peer-reviewed journals.**

The M.S. candidates are not required admission to candidacy.

COURSES OFFERED:

410/610: Pharmaceutical Biotechnology
413/613: Endocrine/Respiratory/GI Pharmacodynamics
414/614: Cardiovascular Pharmacodynamics
415/615: Neuropsychiatry Pharmacodynamics
417/617: Pharmacogenomics
470/670: Pharmacokinetics

701: Quantitative drug design
703: Drug metabolism
718: Techniques in pharmaceutical research
746: Neuropharmacology
747: Cardiovascular pharmacology
762: Advanced biopharmaceutics
790: Graduate seminar
793: Individual study/Tutorials
696/796: Special topics
798: Master's thesis
899: Doctoral dissertation

The department requires the following core courses for M.S. Ph.D. and Pharm.D./Ph.D. candidates:

611: Principles of Pharmacokinetics and Pharmacodynamics
670: Pharmacokinetics
790: Graduate seminar
Bioc 701 Comprehensive Biochemistry I
Bioc 702 Comprehensive Biochemistry II
Stat 725 Applied Statistics

Change from Ph.D. to M.S.

- Discouraged
- Only considered if the performance of the candidate in Ph.D. is not satisfactory

ATTENTION:

https://www.ndsu.edu/fileadmin/policy/158.pdf

Chatting or Luring Minors on the Internet is a CRIME.

Acceptable Use of Electronic Communication Devices at NDSU:

- Nominal Cost
- Does not create impropriety
- Minimal use of software
- Does not interfere with work

Unacceptable:

- Harassment
- Sex materials
- Violation of copyright
- Probing or hacking
- Use of pirated software
- Distributing viruses

Appropriate Use Review Committee (AURC)

Radiation and Safety Training: For use of Radiochemicals in research

Institutional Review Board (IRB) - Approval is needed to work on Human Research

Institutional Animal Care and Use Committee (IACUC): Approval is needed prior to use Animals in Research

Institutional Biosafety Committee (IBC): Approval is needed if you use cell lines and biohazards materials/tissues in Research

Avoiding and Resolving Problems, Conflicts, and Grievances

During graduate studies, problems, conflicts, and grievances involving the people you work with may arise. There can be numerous reasons for conflicts and it is important to resolve these conflicts as early as possible to maintain an enjoyable and productive work environment. Conflicts can involve your fellow graduate students, other people working with you in the lab, staff members and faculty.

General Remarks:

1. The people you work with may not be aware that you perceive a certain situation as problematic.
2. Bringing up your concerns in a friendly and constructive way may resolve the situation.
3. Your advisor should be the first person to talk to about most problems arising during your time in the department.
4. Besides your advisor, other faculty and staff members of the department can be approached for help with problems and grievances
5. The University also provides counseling resources to students and employees that can be utilized.
6. Your graduate research committee is a source of support to you. It's role is in part to help you during your studies with issues concerning your research.
7. Verbal agreements can be summarized by a follow-up email to avoid misunderstanding and future conflicts.

The following table lists some possible problems and suggests the steps you should take to resolve the problem

Problem	Steps to approach the problem
Safe, efficient and collegial work environment in shared departmental facilities	1. Bring the problem to the attention of the person in charge of the facility or instrument. 2. Let the departmental office (Administrative Assistant) know about it, and she will send out an email to the department regarding the issue.
Safe, efficient and collegial work environment in your research group	1. Talk to your advisor. He/she is in charge of all issues concerning his/her research lab.
Work hours, work expectations, vacation time	1. Inform yourself regarding typical work hours and expectation for graduate students. Graduate research is not a "nine to five" job, and sometimes

	requires additional work hours to meet deadlines or to complete an experiment. 2. Talk to your supervisor if you feel that your work hours or expectations are not reasonable or if you need special accommodations for exceptional personal circumstances. 3. Vacation time must be coordinated with and approved by your supervisor.
Direction and supervision of your graduate research	1. Talk to your supervisor with any concerns regarding research direction and progress. 2. Use the experience of your graduate advisory committee. The role of the committee members is to oversee and to support your progress in the graduate program. Committee members have extensive research experience and may have experienced difficult situations to you.
Scientific integrity and honesty	1. Your research advisor should be the first person to approach in most cases. 2. Contact the chair of the department if your advisor is not responsive to your concerns.
Expectations for candidacy exams (preliminary defense) and graduation	1. Make a plan of study together with your advisor and the members of your graduate advisory committee. 2. You may ask your advisor to document the agreed upon expectations for preliminary defense and graduation in writing.

If the steps listed in the table above do not resolve the problem or conflict, contact the chair of the department. The chair will then get involved and mediate between the conflicting parties. Depending on the circumstances, the chair will seek additional input from faculty or staff at his discretion.

Departmental Bylaws

Conflicts between a graduate student and the major research advisor that cannot be resolved or mediated with the involvement of the student's research advisory committee or the chair of the department shall be brought to the attention of the departmental faculty. The chair, after consultation with the faculty, shall appoint a panel of at least four faculty members and three students to investigate the conflict and to mediate between the conflicting parties. The panel shall make a written summary of findings and recommendation of conflict resolution within three months after initial appointment.

Pharmaceutical Sciences Graduate Student Comprehensive Exam

The process to be admitted to candidacy includes 2 exams: the comprehensive exam generally taken in the second year and your preliminary proposal defense (described in a separate document). This document describes the procedures to complete the comprehensive exam. Each year a committee of 3 faculty members in the Department of Pharmaceutical Sciences will be assigned by the chair of Pharmaceutical Sciences to administer the exam for each student. Each student will be asked to develop an idea outside of his/her or his/her PI's research project. The chosen topic MUST include elements of pharmacokinetics and/or pharmacodynamics. The student will then submit a 300-word abstract on their chosen topic to the examination committee. The committee will provide feedback on the suitability of the topic in consultation with the major advisor if needed. Once the abstract has been approved by the examination committee, the student will have 2 months to develop a 6-page NIH R21 style grant with an additional section of references to the examination committee. Preliminary data is not required, but can be taken from current literature to support the underlying scientific premise of the student's proposal. The budget and budget justification will not be required. After submitting their proposal to the examination committee, the student will have 2-4 weeks (depending on scheduling) to prepare an oral defense of their proposal. The student must pass both the written and oral components of the examination within two attempts.

Exam Committee

The exam committee shall be comprised of 3 faculty members, and none should have conflict with the student being examined. In the case of conflict, new member (s) will be added to the committee to avoid conflicts to serve on that particular student's examination committee.

Eligibility

To take the comprehensive exam, the student must have finished their core class work [i.e., Bioc 701, Bioc 702, Stat 725, Pharmacokinetics (PSCI 670) and Pharmacodynamics (PSCI 611)].

Due Dates

The examination will be administered once in a year during fall semester. The student may decide with their major advisor when the appropriate time is to take the exam.

Abstract due: June 1
Feedback from the committee on the suitability of the abstract: June 30
Full Proposal Due: August 15
Oral Defense to be scheduled: October 01 to Nov 30

Scoring

Reviewers will provide score as described under Scoring of Comprehensive Exam of Ph.D. Students to reflect their assessment of the candidate's ability to develop and communicate (both written and oral) their ideas of high scientific quality, in consideration of the following proposal elements:

- Written English (**ABO 2.1**)
- Experimental Design (including experimental rigor) (**ABO 1.2 and 1.6**)
- Hypothesis and Aims Development (**ABO 1.2 and 1.6**)
- Scientific Logic (including the scientific premise) (**ABO 1.2 and 1.6**)
- Alternative Approaches (**ABO 1.2 and 1.6**)
- Use of pharmacokinetics/pharmacodynamics (**ABO 1.1**)

Reviewers will use a 5-point rating scale (as shown under Scoring of Comprehensive Exam of Ph.D. Students).

Specific Ability-Based Outcomes (**ABOs**) to be Assessed

1.1 The student has a well-rounded scientific knowledge relevant to pharmaceutical sciences

1.2 The student is able to develop and plan a scientific experiment

1.6 The student is able to develop an experimental strategy to test a scientific hypothesis

2.1 The student is able to write a scientific abstract, poster or short communication **(Abstract submission)**

2.3 The student is able to write a research grant proposal **(Proposal)**

2.4 The student is able to prepare and deliver an oral research presentation **(Oral defense)**

Cheating and Plagiarism

During the development of the student's idea (prior to abstract approval), they should not discuss their ideas with any other students or faculty in the Department of Pharmaceutical Sciences or any other Department. Any external input into the student's R21 like abstract will be viewed as cheating and the examination will be voided. However, following approval of the student's abstract by the exam committee, the student will be allowed to seek guidance from their major advisor on (1) the mechanics of writing a grant and (2) general experimental design questions during the preparation of the full proposal. If additional clarification about the extent of mentor's input is required, such questions will be directed to the exam committee.

Evidence of plagiarism, as defined by the Department of Pharmaceutical Sciences and NDSU policy (https://www.ndsu.edu/academichonesty/) will also void the examination and will be addressed according to departmental and college policies.

Scoring of Comprehensive Exam of Ph.D. Students

The scoring system will use a 5-point rating scale on each of the following criteria. Please calculate the average of the scores given and enter it into designated box.

Score (points) **Aspects**	Excellent (5)	Very Good (4)	Good (3)	Fair (2)	Poor (1)	
Written English (5 points)						
Experimental Design (5 points)						
Hypothesis and Aims (5 points)						
Scientific Rigor (5 points)						
Alternative Approaches (5 points)						
Use of Pharmacokinetics and/or pharmacodynamics (5 points)						
Total points 30						

Total Maximum Point: 30

Pass 21 and above

Conditional average 20-15 (Needs to re-submit the proposal addressing all critiques)

Fail 14 and below

Written Comments

1. **Written English**

2. **Experimental Design:**

3. **Hypothesis and Aims**

4. **Scientific Rigor**

5. **Alternative Approaches:**

6. **Use of Pharmacokinetics and/or pharmacodynamics:**

Written Proposal	☐	Pass	☐	Conditional Pass	☐ Fail
Oral Proposal	☐	Pass	☐	Fail	

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_____

_____

NDSU NORTH DAKOTA STATE UNIVERSITY

Histology Core Facility

Center for Diagnostic and Therapeutic Strategies in Pancreatic Cancer

Pharmaceutical Sciences Sudro Hall Room 134 Gwendolyn.Thomas@ndsu.edu

Histology Submission Form

Submitted by:

PI:

Department:

Telephone #:

Email address:

Preferred method of contact: ◯ Phone ◯ Email

PO# or grant for billing:

Lab Office Use Only:

Date Received:

Materials received: WT / B / C / S

Apply label here

Submission Requirements

1. Fill out form completely.
2. Do not submit samples in glass or non-leak proof containers.
3. Submit fixed tissue cassettes in **70% ethanol**. Samples must be fixed for **24 – 48 hours** prior to submission.
4. Label cassettes with pencil (DO NOT use a sharpie).
5. Provide slide box or folder for completed slides.
6. Log time of fixation in the space to the right. ⟶

Date placed in 70% Ethanol:

Fixative used:

Fixation time:

Write in Total Number of Samples Submitted (all types): (Details on second page)

Fixed Tissue Cassettes Wet Tissue Paraffin Blocks Glass Slides

Special Embedding Instructions:

I want to be present when tissue is embedded. Contact me at

Lab Office Use Only:

Processing Date: Completion Date: Notification Date:

NDSU NORTH DAKOTA STATE UNIVERSITY

Histology Core Facility

Apply label here

	Cassette Label Name	Species & Tissue	#H&E	#Unstained	Sections per Slide	Additional Information
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						

The Histology Core is located in Sudro 134 in the department of Pharmaceutical Sciences.

Sample submission is Monday – Friday, 1:00pm-3:00pm or by appointment

Contact
Gwendolyn Thomas
Histology Core Technician

Services

Tissue Preparation

- All tissues submitted to the core must be grossed, placed in a cassette and fixed for a minimum of 24 hours, up to 48 hours, prior to submission.
    - Fixation: all tissues must be fixed prior to submission, preferably in 10% Neutral Buffered Formalin
    - Submission: all samples will be submitted in 70% ethanol
- Tissue processing; dehydration, clearing, infiltration, embedding, slide preparation and scanning.

Microtomy

- Paraffin microtomy

Histostaining

Service will include protocols, and advice on tissue processing, embedding orientation, and routine or special staining. Paraffin embedding, processing, sectioning and a staining service that will include:

- **Hematoxylin & Eosin (H&E)**: general tissue staining
- Other special stains may be available on an individual basis or will be supplied by the investigator.

Whole Sliding Scanning

Scanned images will be stored for 30 days from the day of project completed notification. The core will work with investigators to transfer data once available. After 30 days, the core is not responsible for the storage of data due to limited space.

- Diagnostic quality, high-throughput resolution images at 20X or 40X magnification

Policies

Consultation Meeting

An initial consultation meeting is highly recommended for all first time users to discuss your project goals and feasibility. Please contact the Histology core (**Gwendolyn.Thomas@ndsu.edu**) to schedule a consultation meeting.

Data storage

All scanned images will be stored on the core computer ***for 30 days*** after project completion notification. After that, the core is not responsible for the storage of data due to limited space. It is the responsibility of the PI to communicate with staff for image transfer.

Publication Acknowledgment

NDSU Core policies require that all facility users acknowledge the COBRE histology core facility in any published work that reports data collected and processed using core services. ***Acknowledgments can be referenced as: Histological services were provided by the NDSU Histology Core Facility supported by the Center for Diagnostic and Therapeutic Strategies in Pancreatic Cancer funds.*** The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institute of Heath.

Sample Submission Guidelines

Consultation

An initial consultation is highly recommended for all first time users to discuss sample handling, tissue fixation, and embedding. Please contact the Histology core (**Gwendolyn.Thomas@ndsu.edu**) to schedule a consultation meeting.

Biosafety Considerations

- All tissues/cells must be fixed, 10% neutral buffered formalin (NBF) recommended, for a minimum of 24 hours up to 48 hours.

Turn Around Time

A standard turn-around time of approximately 5 to 10 business days is assigned to orders at the time of submission; turn-around times are dependent on complexity and size. Orders are accepted Monday through Friday, 1:00pm-3:00pm on a first-come first serve basis.

Tissue Cassette and/or Containers Labeling

- Fixed tissue samples must be submitted in a sealed container labeled with PI name, sample ID, and transport reagent (70% ETOH). Label all cassettes using a #2 lead pencil or pen specifically designed for histology labeling
    - **DO NOT USE A SHARPIE OF ANY KIND**
    - Please print clearly
    - Histology Core staff will not be held responsible for the loss of sample labels due to the use of a non-solvent resistant marker. If in doubt, test marker before use in solvent.
    - Use of a simple coding system containing no more than 8 characters is recommended.

Tissue Collection

- Cut tissues 2-3 mm thick if possible, as this allows for better penetration of fixative.
- Do not overcrowd specimens in jars or cassettes, as this hinders good fixation and proper embedding of samples.
- Samples will not be grossed by staff. The sample will be processed as received.

Tissue Fixation

- Place tissue in fixative immediately to prevent autolysis.
- Cover tissue with 10-20 times its own volume of fixative.
- If multiple tissues are fixed in the same container, swirl the container periodically and make sure tissues are not sticking together or floating.
- Fix for a MINIMUM of 24 hours; aim for 48 hours as a standard. A shaker or rocker will greatly assist in attaining even and complete fixation.
- Tissue must be transferred into 70% ethanol before submission. Please note the fluid type on the sample container for safe disposal.

Sample Drop Off

Orders are accepted Monday through Friday, 1:00pm-3:00pm, or by appointment.

- Sample submission form must be completed in its entirety prior to sample drop off. The form should be printed double sided.
- Bring sample and form to Sudro Room 134.
- Your submission will be given an order number at drop off. You will need to reference this number for questions and at pickup.
- The core will supply some supplies for submission; cassette, sponges, containers. Please contact the staff for more information.

Sample Return

User will be notified via email when orders are ready for pickup.

Orders may be picked up between 1:00pm-3:00pm, Monday through Friday, or by appointment in room Sudro 134.

Graduate Seminar

Purpose:

The primary purpose of the weekly departmental seminar is to enhance your career development as a scientist and critical thinker. During seminar, you will have an opportunity to develop your communication skills, gain poise in presenting your work, exchange ideas, and to provide constructive feedback to your peers. You will also develop the ability to think on your feet in terms of asking and responding to questions. The skills learned in seminar will be needed throughout your career, whether presenting your work at a scientific conference, interviewing for a job, or teaching a class.

How-to:

Seminars are generally of two types: mini review and research seminar (where you will present your own work). You will be expected to present one seminar each semester while you are in the graduate program.

Be professional in presenting your seminar. When presenting a seminar, wear neat and professional attire (business casual). Make eye contact with the audience and try not to read directly from your notes or slides. Speak slowly, distinctly and loud enough to be heard by everyone in attendance. Use the laser pointer judiciously; do not simply wave it around on the slide but, rather, point to the specific item(s) of interest. Keep the amount of text on your slides to a minimum; do not use lengthy, hard-to-read tables. Everything on your slides should be easily visible to those sitting in the last row at the back of the room.

Begin by providing some rationale or context for your presentation. State the hypothesis to be tested or specific goal of the project. Next, describe the methods and research design of your studies, followed by the results. Carefully and completely describe your figures, keeping in mind that the data and their interpretation should be the major focus of your seminar. Finally, briefly summarize your findings and conclusions. Always ask yourself: do the results justify the conclusions?

Practice your presentation ahead of time. A research seminar should last about 1 hour (30 minutes for mini review presentations). Your presentation should be about 40-45 minutes in length, with 15-20 minutes remaining for questions and discussion (20 min and 10 min, respectively, for mini review). Please observe the time limit. Seminars that are unduly long or short indicate a lack of organization and will not be viewed favorably.

Expectations:

As a member of the audience, your participation is expected. Ask questions of the speaker or offer suggestions on how you might approach the problem or interpret the results. Remember, the purpose is to exchange ideas and to give the speaker feedback on his or her research.

Attendance at departmental seminars is required. In case an emergency comes up, please inform the faculty seminar coordinator and Department Office Staff (701) 231-8902 that you will be unable to attend. An unexcused absence (failure to attend seminar) will result in an unsatisfactory grade for the semester.

Each week, a link will be sent out for audience members to evaluate the student's seminar presentation. This survey will be completely anonymous and allows members of the department to provide constructive criticism and feedback. Comments will be shared with the presenters.

General Cell Culture Regulations (Sudro 36)

1. Each user must undergo safety orientation prior to using the facilities.

2. The department will not provide common reagents. Supplies must be purchased from the P.I.'s own research funds.

3. Users may not store any cell culture reagents in the cell culture room.

4. Gloves (from your lab) must be worn to handle cells, flasks, etc. that pass into the hoods and incubators. Please remove gloves before exiting the cell culture rooms. At no time should gloves be worn in the kitchen, lunch area or offices.

5. Lab coats may be worn in the cell culture rooms, however, do not use lab coats that are used for animal experiments or bacterial culture, or stored in these areas. At no time should lab coats be worn in the kitchen, lunch area or offices.

6. Do not use cell culture facilities for culturing bacteria.

7. Do not store waste containers in the cell culture rooms. Please dispose of them at the end of each day in the biohazard bags.

8. Please tape up biohazard bags when they are 80% full and call (1-7759) to collect the waste. Similarly, the Biohazard liquid waste should be collected if any, and disposed via safety office.

9. Each user must obey the cell culture regulations, otherwise, they will be prohibited from using the core facilities.

10. Please clean the Biosafety cabinet after each usage (70% ethanol).

General Olympus Confocal Microscopy Regulations - Sudro 103

1. Each user must undergo orientation/training prior to using the facilities. Even individuals with extensive experience outside of our department must receive an orientation. No individual may train another user in the use of the microscope.

2. Each user must reserve the confocal microscope. Individuals should send an email to ndsu.pscireservation@ndsu.edu to make a reservation.

3. Each user must sign up for microscopy time and must record the time used. Individuals not complying with these regulations will not be permitted to use the equipment.

4. All problems, breakages or other issues must be reported to Dr. Sathish Venkatachalem (s.venkatachalem@ndsu.edu) or Department Office Staff immediately in person, please use log book and document in the notes section as well. DO NOT leave unresolved problems for the next person to deal with.

5. The department will not provide common reagents. Supplies must be purchased from the P.I.'s own research funds.

6. Users may not store their own reagents in the microscopy room.

7. Users must use lens cleaning tissues to clean the microscope and other surrounding area by kimwipes (Important after each experiment/usage)

8. Each user must adhere to the confocal microscopy regulations or you will be prohibited from using the facilities.

9. Users are expected to save the acquired images to an external storage devices such as jump drive or memory stick. DO NOT leave the images on the hard disk. The hard disk will be cleaned **every week**.

10. Each user must enter the details of the use in the log book provided in the microscopy room, and provide comments/input after the experiment.

Instructions for Leica Fluorescence Microscope (Sudro 103)

- Each user must be trained by Dr. Sijo Mathew (sijo.mathew@ndsu.edu) prior to using the equipment.
- Even users with previous experience with fluorescence microscopy must have an orientation prior to use.
- Each user must reserve the microscope and record the usage and comments in the log book.
- Reservation link to reserve equipment: ndsu.pscireservation@ndsu.edu
- Files may be temporarily (less than 1 week) saved to the desktop under each lab at your own risk. All files should be exported and saved to an external drive. The computers will be cleaned every month to remove all the files.
- Only use USB ports in the front of the computer and NOT on the back must be used for importing files.
- Do not remove any USB drives from the computer.
- Report any issues to Dr. Sijo Mathew (sijo.mathew@ndsu.edu) or to one of the Department Office Staff in person or via email. DO NOT leave any unresolved issues at the end of your session.
- Users must have additional training to use the 40x and 63x oil immersion objective.
- The department will not provide any reagents nor should reagents be stored in the microscopy room.
- If you are using an oil immersion lens, the lenses should be cleaned thoroughly of oil after the use.
- Individuals not complying with these regulations will not be permitted to use the equipment.
- Area needs to be cleaned after every use. (Leaving your slides and tips on the table is a BIOSAFETY issue and it's not an acceptable practice)

Instructions for Zeiss Confocal Microscope - Sudro 102

- Each user must be trained by Dr. Sijo Mathew (sijo.mathew@ndsu.edu) prior to using the equipment.

- Please always carry a copy of instructions with you.

- Each user must reserve the confocal microscope. Individuals should send an email to ndsu.pscireservation@ndsu.edu

- Files may be temporarily (less than 1 week) saved to the desktop under each lab at your own risk. All files should be exported and saved to an external drive. The computers will be cleaned every month to remove all the files.

- Report any issues to Dr. Sijo Mathew (sijo.mathew@ndsu.edu) or to one of the Department Office Staff in person or via email. DO NOT leave any unresolved issues at the end of your session.

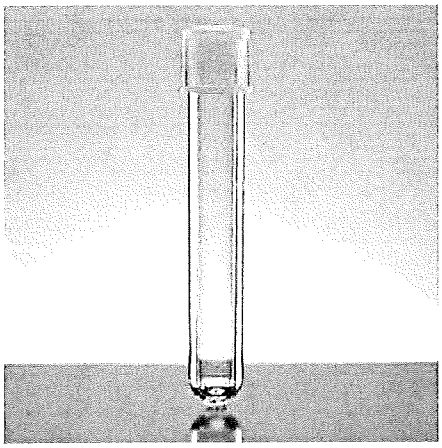
- The department will not provide any reagents nor should reagents be stored in the microscopy room.

- If you are using an oil immersion lens, the lenses should be cleaned thoroughly of oil after the use.

- Individuals not complying with these regulations will not be permitted to use the equipment.

Policies and Procedures for BD FACS Melody (Sudro 36)

- Equipment should be reserved through the Pharm Sci office
- Everyone must properly perform the startup, shutdown, and cleaning procedures as described in the training sessions. Initial training will be provided by Sijo Mathew or Buddhadev Layek.
- When planning a flow cytometry experiment it is important to make sure that samples must be filtered before analysis and no cell clumps present.
- **Every sample must be passed through the filter cap of a 5 mL polystyrene Round-Bottom 12x75mm tube with a Cell-strainer cap. (Recommended-Corning FALCON Ref-352235).**



- After removing the cap, load the samples in the sample holder in the **5 mL polystyrene Round-Bottom 12x75mm tube. (No other tubes should be used).**
- **Must use Cell staining buffer for sample preparation instead of PBS (BioLegend Cat. No. 420201).**
- If you are using blood samples, it is recommended to use **BD Phosflow Lyse/Fix Buffer. (BD Biosciences Cat. No. 558049).**
- The minimum sample volume recommended is 500uL (**Approximately 1 x 10^6 cells per mL).**
- Once the experiment is done, please make sure that the system is cleaned properly and SORT **NOZZLE is clean.**
- Please be aware that if we need to change the sample lane again (cost approximately $500) that may be charged to the user's PI's grant if it is due to the improper sample or usage of the instrument).
- All the PIs, are requested to kindly identify only one person (per lab) to use instruments and get trained properly (other members are expected to take help from this designated person during their experiments). **This will help us to avoid instrument downtime due to improper handling!**
- Please contact Sijo Mathew or Buddhadev Layek for trouble shooting.

Rules (Ultracentrifuge)

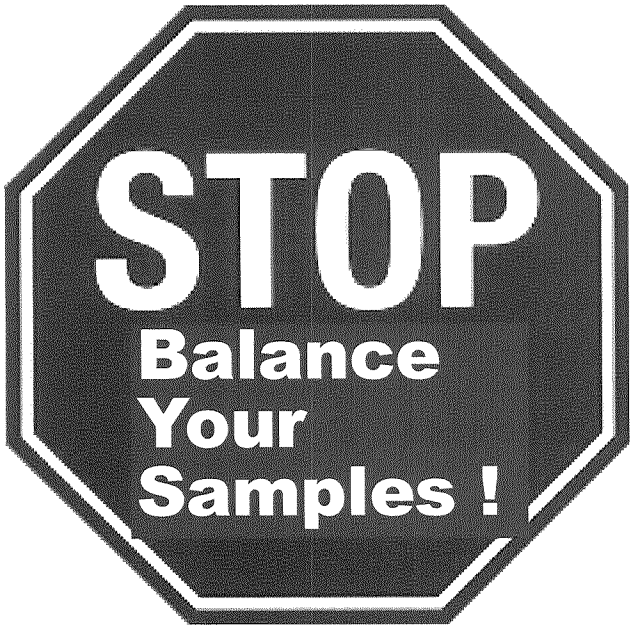
1. Every user needs to be trained by Dr. Layek, even users with previous experience with Ultracentrifuge must have an orientation prior to use. Always reserve the equipment if you plan to use. And always sign in the logbook.
2. Undergraduates are **NOT allowed** to operate this ultracentrifuge.
3. Always use beckman certified **rotors** and matched **tubes**. Information is available at www.beckmancoulter.com/. Currently, we have four rotors: **sw41 Ti, SW55 Ti, SW32 Ti, TYPE 70 Ti.** These rotors have been tested and certified by Beckman engineer. **Only these rotors can be used on this Ultracentrifuge**. Rotors outside department of Pharmaceutical Sciences are not allowed.
4. Always double check the **proper filling** capacitance of tubes. Improper filling will cause severe imbalance and damage to the ultracentrifuge. You can find the information of tubes at www.beckmancoulter.com/.
5. Always check the **Chemical Resistance** of your tubes to your solvents at www.beckmancoulter.com/. Tube disruption during centrifuging will destroy the ultracentrifuge.
6. Use **analytical balance** to adjust the load. The samples must be **arranged symmetrically (paired) and balanced**. Odd number of samples is not allowed. Balance means: a. The weight difference between paired samples must be **≤ 0.001 gram**. b. The **density** of liquid samples must be the same. In another word, the solution composition of paired samples should be the same. c. The number on each swing bucket must match the position number on the rotor. d. The tubes must be filled properly. e. remove water droplets on the outside surface of tubes. **Check the Beckman instruction for tube filling before use.**
7. Always pay attention to abnormal noises during the acceleration phase. Don't leave until the setup speed is reached and stably maintained.
8. Your every single operation is monitored and logged. Every event (imbalance, et al) will be recorded by the system. The history of improper use will be tracked and reported regularly.
9. If you notice anything abnormal or violations, report to designated persons immediately. buddhadev.layek@ndsu.edu or one of the Department Office Staff.

I (print name)_____, as an user, have read and understood the rules and methods of using this ultracentrifuge. I will follow these rules and methods.

User Signature_____ date _____

Trained by _____ Trainer signature_____ date_____

Ultracentrifuge Rules and Users Guide



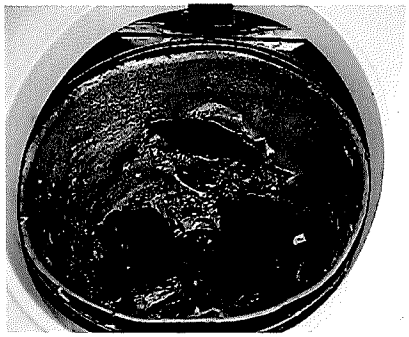
Rules

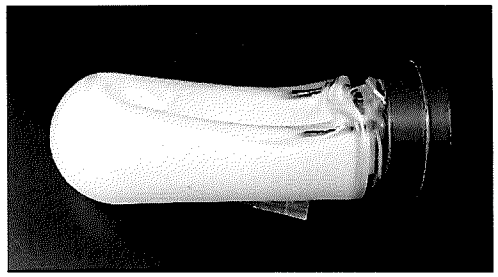
1. Every user needs to be trained by designated persons. Always reserve the equipment if you plan to use.
2. Undergraduates are NOT allowed to operate this ultracentrifuge.
3. Always use beckman certified rotors and matched tubes. Information is available at www.beckmancoulter.com/.
4. Always double check the proper filling capacitance of tubes.
5. Always check the Chemical Resistance of your tubes to your solvents
6. Use analytical balance to adjust the load. The samples must be arranged symmetrically and balanced.
7. **Always pay attention to abnormal noises during the acceleration phase.** Don't leave until the speed is stable.
8. **Your operations are monitored. Every event (imbalance, et al) will be recorded by the system. The history of improper use will be inspected and reported regularly.**

Balance means:

1. **The weight difference between paired samples must be < 0.001g.**
2. **The density of liquid samples must be the same.**
3. **The number on each swing bucket must match the position number on the rotor.**
4. **The tubes must be filled properly. Check the Beckman instruction for tube filling before use.**

Respect the centrifuge! Don't make these incidents happen!





Contact: Buddhadev Layek 701.231.6106 or
Department Office Staff 701.231.8902

What Constitutes Plagiarism?

Kristine J. Steffen, Pharm.D., Ph.D.
Professor/Pharmaceutical Sciences
School of Pharmacy
College of Health Professions
NORTH DAKOTA STATE UNIVERSITY

Resources

- Online tutorials
  - *http://www.lib.usm.edu/legacy/plag/whatisplag.php*
  - *https://www.indiana.edu/~istd/*
  - *https://plagiarism.duke.edu/*
  - *Several others*
- Online resource
  - Blackboard → SafeAssign

NDSU Policies

- NDSU Resources/Policies
  - https://www.ndsu.edu/academichonesty/
  - NDSU Policy 335
    - https://www.ndsu.edu/fileadmin/policy/335.pdf

NDSU Policy 335

- Plagiarism (intentional or unintentional) constitutes academic misconduct at NDSU.
  - Plagiarizing – submitting work that is in part/whole not entirely one's own without giving credit to sources
- Penalties vary in severity according to the offense(s), up to and including suspension or expulsion from the University

What is Plagiarism?

- **"Plagiarism** is the act of taking another person's writing, conversation, song, or even idea and passing it off as your own."
- "This includes information from web pages, books, songs, television shows, email messages, interviews, articles, artworks or any other medium."
- "Whenever you paraphrase, summarize, or take words, phrases, or sentences from another person's work, it is necessary to indicate the source of the information *within your paper* using an **internal citation."**
- "It is not enough to just list the source in a bibliography at the end of your paper. Failing to properly quote, cite or acknowledge someone else's words or ideas with an internal citation is **plagiarism**."

University of Southern Mississippi Plagiarism Tutorial
http://www.lib.usm.edu/legacy/plag/whatisplag.php

You might be plagiarizing if you…

- Examples of Intentional Plagiarism
  - Purchasing a pre-written paper (either by mail or electronically).
  - Letting someone else write part or all of a paper for you.
  - Paying someone else to write part or all of a paper for you.
  - Submitting as your own someone else's unpublished work (including a computer program or algorithm), either with or without permission.
  - Submitting as your own, work done jointly by a group in which you may have participated.
  - Submitting work done by you, but for another class or another purpose without documenting that it was previously used.
  - Creating phony citations.

Duke Plagiarism Tutorial
https://plagiarism.duke.edu/intent/

You might be plagiarizing if you…

- Examples of Unintentional Plagiarism:
  - Failure to cite a source that is not common knowledge.
  - Failure to "quote" or block quote author's exact words, even if documented.
  - Failure to put a paraphrase in your own words, even if documented.
  - Failure to put a summary in your own words, even if documented.
  - Failure to be loyal to a source.

Duke Plagiarism Tutorial
https://plagiarism.duke.edu/intent/

Internal Citation

- "An **internal, in-text,** or **parenthetical citation** refers to the practice of giving credit to an author, singer, or speaker by citing their words/ideas within your paper."
- "This internal citation is then *referenced* at the end of your paper in your 'Works Cited' list (see below)."

University of Southern Mississippi Plagiarism Tutorial
http://www.lib.usm.edu/legacy/plag/whatisplag.php

Internal Citation

Patients who undergo Roux-en-Y gastric bypass (RYGB) may be at increased risk of an alcohol use disorder after surgery[1–3]. One theoretical contributor to this phenomenon may be the alterations in the pharmacokinetics (PKs) of alcohol that have been reported after RYGB. It has been reported that substances that reach peak concentrations more rapidly are associated with higher addictive potential [4,5]. The present study extends the previous alcohol PK literature by examining the rate and extent of alcohol absorption after RYGB. These data may have implications for alcohol use disorders after RYGB, as well as for patient safety and education after surgery.

Alterations in alcohol PK after RYGB have been reported relative to presurgery [6] and to nonsurgical comparison group [7,8]. Data have consistently shown higher maximum alcohol concentrations in patients who have undergone RYGB. Data for other bariatric procedures is more

*Correspondence: Kristine J. Steffen, PharmD., Ph.D., College of Pharmacy, Nursing, and Allied Sciences, North Dakota State University, NDSU Dept. 2665, P.O. Box 6050, Fargo, ND 58108-6050.
E-mail: kristine.steffen@ndsu.edu

1550-7289/13/$ - see front matter
http://dx.doi.org/10.1016/j.soard.2013.02.002

Steffen et al., 2013

Works Cited Page

- "A **Works Cited** page, also known as a **bibliography** or **reference list**, comes at the end of your paper listing all the works (books, articles, Internet sites, etc.) you've quoted, paraphrased or otherwise used to create your paper…"

University of Southern Mississippi Plagiarism Tutorial
http://www.lib.usm.edu/legacy/plag/whatisplag.php

Works Cited Page

References

[1] Conason A, Teixeira J, Hsu CH, Puma L, Knafo D, Geliebter A. Substance use following bariatric weight loss surgery. Arch Surg 2012;15:1–6.
[2] King WC, Chen JY, Mitchell JE, et al. Prevalence of alcohol use disorders before and after bariatric surgery. JAMA 2012;307: 2516–25.
[3] Suzuki J, Haimovici F, Chang G. Alcohol use disorders after bariatric surgery. Obes Surg 2012;22:201–7.

Steffen et al., 2013

The Two Main Purposes of Citation

1. To point out differences between the thoughts of others and your own original work.

2. To direct the reader to the original document you refer to.

University of California, Davis
http://cai.ucdavis.edu/citation.html

Common Knowledge

- "**Common knowledge** needs no internal citation in a paper. Common knowledge includes information that is considered a well-established fact verifiable in five or more sources. It also includes common sayings and proverbs ("look before you leap") and historical dates, places and events."

"A genome is all the DNA in an organism, including its genes."

University of Southern Mississippi Plagiarism Tutorial
http://www.lib.usm.edu/legacy/plag/whatisplag.php

San Jose State University Plagiarism Tutorial
http://tutorials.sjlibrary.org/tutorial/plagiarism/tutorial/introduction.htm?flash=no

Quoting vs. Paraphrasing

- "Quoting means using someone else's *exact* words."
- "Paraphrasing is putting someone else's words or ideas into your own words."
- "Some of the most common mistakes made when writing a research paper are paraphrasing incorrectly and failing to give the original author credit. Even you are using your own words, the ideas are still taken from someone else and must be cited."

San Jose State University Plagiarism Tutorial
http://tutorials.sjlibrary.org/tutorial/plagiarism/tutorial/introduction.htm?flash=no

An Acceptable Paraphrase

- Records the information in the original passage accurately.
- Gives credit for the ideas in this passage.
- Indicated which part is taken directly from her source by putting the passage in quotation marks and citing the page number.

Purdue University, Calumet; Academic Integrity
http://webs.purduecal.edu/integrity/examplesp/examples-of-plagiarism/

Common Errors

- No quotation marks around specific language
  - Dropped quotations
  - Overuse of quotations
- Paraphrasing that retains the same language or sentence structure of reference
- Inaccurate or incomplete references

University of California, Davis
http://cai.ucdavis.edu/citation.html

Working in the animal facility

Gain Access to the Animal Facility

1. **Enroll in the Occupational health program for Individual who work with animals**
   A. A description of the program can be found here: https://www.ndsu.edu/fileadmin/policesafety/docs/OccupationalSafetyandEnvironmentalHealth.pdf. Please read this description and ask any questions you have to your PI, Jennifer Baker in the University Police and Safety Office, or Dr. Shashi Bhushan in the animal facility.
   B. Enroll in this program, the employee/researcher fills out a health assessment form that can be found here: https://www.ndsu.edu/fileadmin/vpfa/forms/UPSO-IACUC_HealthAssess.pdf. This form is private. Only the occupational health provider will review this form.
   C. PI/supervisor fills out a hazard and risk assessment form that can be found here: https://www.ndsu.edu//fileadmin/vpfa/forms/UPSO-IACUC_HazardRiskAssessment.pdf. Your supervisor must review and sign the hazard and risk form.
   D. When both forms have been completed, please contact Jennifer Baker to set up a short visit:

Jennifer Baker
Email: jennifer.baker@ndsu.edu
Phone: (701) 231-6740
Department: University Police & Safety Office
Title: Associate Director of Public Health & Safety
Office Auxiliary Enterprise 106

Jennifer will answer any questions you have regarding the Occupational Health program then she will mail the two forms into an occupational health provider.

In about a week the occupational health provider will send a message back to Jennifer, which she will then share with you, with any recommendations for you to work safely with animals. Jennifer will communicate your enrollment completion with the IACUC.

2. **Complete all training required by the Compliance Committees.**

There are 3 main Compliance committees, the Institutional Animal Care and Use Committee (IACUC), the Intuitional Biosafety committee (IBC), and the Institutional Review Board (IRB).

- IACUC oversees animal research at NDSU.
- IBC oversees the use of recombinant or synthetic nucleic acids, infectious agents, human blood, bodily fluids and tissue at NDSU.
- IRB oversees research involving human at NDSU.

A. The Administrators of the compliance committees will assign required training to a researcher when your PI requests that you be added to a protocol.
   a. This includes on-line training (CITI and NDSU University Police and Safety Office).
   b. IACUC requires in-person training. In-person training for mice may be completed with Dr. Shashi Bhushan and In-person training with Rats may be completed with NDSUs attending veterinarian.

B. Complete Animal Facility orientation.

a. Animal facility orientation is a required walk through of the animal facility with Dr. Shashi Bhushan after you have enrolled in occupational health. This visit will be used to show the new individuals where everything is located in the Animal Facility, discuss applicable standard operation procedures (SOPs), show available resources, and to answer questions.

C. Complete IACUC required in-person mouse handling and husbandry training with Dr. Shashi Bhushan.

3. Obtain Card Access

Card access will be granted to individuals who have met all of the requirements of being approved by occupational health to work with animals, complete all compliance committee training, attend animal facility orientation, and pass required IACUC mouse handling and husbandry skills.

A. Being granted card access to this space is a privilege. Card swipes are logged and activity that occurs in these spaces is tracked.

B. Adherence to responsible use of card access is outlined in the following College and University Policies:
   a. College of Health Professions Policy 3.01, Student Academic and Conduct Standards:
   b. www.ndsu.edu/healthprofessions/college_information/policy_manual/
   c. https://www.ndsu.edu/fileadmin/policy/703.pdf
   d. https://www.ndsu.edu/fileadmin/policy/707.pdf

Rooms in the facility

A. Anteroom: Space where you gown up before entering the facility and gown down before leaving the facility.
B. Common area: space could be used to change cages.
C. Chambers: space where mice are housed.
D. Storage room: Space where food, bedding and enrichment are stored.
E. Mouse room: space where immunocompromised mice are housed.
F. Procedure room: space where surgeries and other procedures take place.
G. Clean room: space where clean cage components are stored.
   a. Once items leave the clean room, they must go through proper sterilization process.
H. Dirty room: space where dirty cages are rinsed and processed for washing.

Equipment in the animal facility

Equipment in the animal facility is open to all individuals who have card access to the animal facility this equipment includes:

A. Vevo 3100 Ultrasound
B. Ami HTX imaging system
C. Biosafety cabinets
D. Isoflurane anesthesia equipment
E. Autoclave

- To be trained on equipment contact Dr. Shashi Bhushan, Shashi.Bhushan@ndsu.edu.

- To reserve any equipment and/or space in the procedure room in the animal facility email ndsu.pscireservation@ndsu.edu.

Safety requirements of ABSL-2 Facilities

The animal facility is an ABSL-2 facility which means animals may be infected with agents associated with human disease which poses a moderate hazard to you and the environment.

A. **Proper attire for ABSL-2 facilities**
    - Long pants
    - Close toed shoes
    - Gloves
    - Mask (optional, COVID-19 dependent)
    - Shoe covers
    - Animal specific Lab coat
- For special procedures other PPE may be required which will be provided to you by the animal facility or your PI.

There is a rack for your animal facility specific lab coat in the anteroom. Once you are granted access to the animal facility a specific hanger will be labeled with your name for you to store your lab coat in the animal facility. You are not allowed to wear a lab coat from your lab space into the animal facility, so if you are transporting samples into the facility, you must switch lab coats in the anteroom. You can temporarily store your other lab coat in a cubie in the anteroom. Additionally, your lab coat must be laundered every two weeks (we recommend the 1st and 3rd Monday of every month). In the event anything spills on your lab coat or if it appears dirty you must replace your lab coat sooner than two weeks. New lab coats can be found in Sudro 136 in the cabinets along the wall. Place dirty lab coat in the laundry receptacle located in the anteroom.

Waste Disposal in an ABSL-2 Laboratory space

Multiple types of waste are generated in the animal facility. The list below contains the waste disposal containers present in the animal facility. The list below each container consists of what can be placed in each container that you may encounter while working in the animal facility:

A. **Sharp bins**
    - Scalpels
    - Sutures
    - Syringes
    - Razor blades
    - Any other sharps that are contaminated with biohazardous materials, including recombinant or synthetic nucleic acids.
B. **Burn Up Bins**
    - All disposable personal protective equipment (PPE) goes in to burnup bins (gloves, mask shoe covers)
    - Anything that is not sharp and has blood on it goes into a burn up bin

- Indicators
- Pipet tips
- ANYTHING THAT COMES IN CONTACT WITH BIOHAZARDOUS AGENTS

C. **Solid waste buckets**
- Isoflurane bottles
- Activated Charcoal

D. **Regular trash**
- Anything that is not PPE, not a sharp, and has not come in contact with any biohazardous agents.

E. **Laundry bins**
- Orange rags
- Lab coats
- Mop heads

F. **Freezer**
- Place all animal carcasses and tissues into a red biohazard bag and put into the chest freezer in the animal facility.

Daily welfare check

1. Welfare must be performed daily on all animals
    a. During daily welfare check for the following:
        - Signs of distress
        - Adequate water and food for 2+ days
        - Any injuries that have caused a break in the skin
        - Wet bedding
2. After daily welfare check sign the Activity log that corresponds to your lab and your PI. The activity log is the official document in which animal care is recorded. Recorded on this log is:
    - Daily welfare check
    - All animal husbandry activities
    - Documentation of when issues with animals arise.

Cages

- A complete caging system consist of 6 parts, a bottom, a lid, a feeder, a water bottle, a sipper and a cage card. Each cage has a maximum capacity of 5 animals
    - The bottom is filled with ~ 2cm of bedding. Bedding serves many purposes for animals, it acts as a protector from the cold surface animal cages are placed on, animals play in the bedding, and use the bedding to nest.
    - The Lid protects the animals from dust in the environment.
    - The feeder holds both food and water for the animal.
    - The water bottle and sipper allow the animal access to water.
    - The cage card is a very important part of every cage, it states
        - Number of animals housed in a cage,
        - Strain of mice

- Protocol number
- Name of PI
- Birth location (vendor, or NDSU-Animal facility)
- Date of birth
- Emergency contact

Cage changing

A. Every lab has a designated time where resources and space are available in the animal facility for cage changing. During this designated time your lab has priority to cage changing resources and common area space.
B. If uncontrollable events occur and you cannot change cages during you designated time, email Dr. Shashi Bhushan as soon as possible. We will work with you to find a new time for that week.
    a. Not changing cages during your designated time is a breach in protocol and only acceptable when uncontrollable events occur.
C. There are multiple steps in the cage changing process.
    a. Count how many cages you have.
    b. Gather all cage components from the clean room.
    c. Assemble all cages and place mice into their new home. While transferring mice from one cage to another, a thorough welfare inspection is done of each mouse.
    d. Wipe housing rack before placing a newly replaced cage.
    e. Processing of waste
        - Non-hazardous waste: dispose of all food waste and bedding waste in disposable station and properly dispose of waste in dumpster, located on the north side of Sudro Hall.
        - Hazardous waste: dispose of the waste according to your IBC protocol.
    f. All cage bottoms are rinsed and all dirty cage components are put on the dirty cart for further processing by Facility personnel.
    g. Sweep floors of the chamber and space used

Controlled Substances

A. Review Pharmaceutical sciences DEA-controlled substances SOP.
B. Controlled substances must be locked at all times except when actively dispensing
C. All activity with controlled substances must be logged in the controlled substance binder designated for your lab
    a. This binder is checked Monthly and inconsistencies with the use of controlled substances will be followed up on by Dr. Shashi Bhushan.
D. When controlled substance are expired or need to be discarded, contact Dr. Shashi Bhushan. Do not discard any substances and any container (vial, Eppendorf tubes) used for controlled substances.

E. Mishandling of controlled substances is punishable by law in the United States so all personnel must be added to an authorized personnel list before being allowed to handle controlled substance.

Safety Reminder- Usage of Disposable Gloves

A. Disposable gloves are worn by users for protection against hazardous materials that may be encountered in the context of their work. Along with other personal protective equipment (PPE) they are important in protecting workers.
B. Just as it is critical to wear gloves inside the lab for protection, it is equally important to remove gloves before leaving the lab. The hazardous materials your gloves are protecting you from can be and are on your gloves. You do not want to transfer those materials to door handles, elevators buttons, telephones, water fountains, photocopiers, common equipment, etc. outside of the laboratory. People outside of the labs do not routinely wear PPE and will not be protected. It is important to remove your gloves even if you think or know they are not contaminated out of respect for others who might not know if you have handled hazardous materials with your gloved hand(s).
C. If you must transport something in between labs, one hand can remain gloved to hold the item, while you use your ungloved hand to open doors. An ideal situation is that you put the item on a cart for transport, then you do not need to wear gloves at all.
D. If it is helpful or facilitates personnel not wearing gloves between workspaces, gloves can be stocked in other rooms. Please voice these needs to your PI, Janet, or Dr. Shashi Bhushan.
E. Remember, whenever gloves are removed you should wash your hands. It is very difficult to remove gloves without getting what is on the outside of your gloves onto your skin somewhere.
F. If personnel are choosing to wear gloves outside the laboratory as protection against infection with SARS-CoV-2, I encourage you to instead utilize the hand sanitizer stations in the building, wash your hands frequently, and avoid touching your face. Gloves can become contaminated just as easily as hands and you may gain a false sense of security while wearing them.

Animal Facility personnel Contact Information

Please send an email or stop by one of our offices with any questions about the animal facility

Shashi Bhushan, Ph.D.

- Office: Sudro 222M
- Office Phone: 701-231-1843
- Email: **Shashi Bhushan@ndsu.edu**

Pharmaceutical Sciences DEA Controlled Substances SOP

I. Regulations

The Controlled Substances Act, Title II of the Comprehensive Drug Abuse Prevention and Control Act of 1970, regulates the manufacture and distribution of narcotics, stimulants, depressants, hallucinogens, anabolic steroids, and chemicals used in the production of controlled substances.

2.2 Code of Federal Regulations, 21CFR Parts 1300-1399; and 21 CFR Parts 1308 - Schedules of Controlled Substances.

2.4 Code of Federal Regulations, 40 CFR Parts 260, 261 and 264.

II. Schedule Definitions

In the Department of Pharmaceutical Sciences, we do not currently purchase or work with controlled substances in Schedules I or II. These substances have separate ordering, storage, and logging requirements that are not included in this manual.

Definition of Controlled Substance Schedules (from https://www.deadiversion.usdoj.gov/schedules/index.html; lists of controlled substances can be found at this website as well)

Drugs and other substances that are considered controlled substances under the Controlled Substances Act (CSA) are divided into five schedules. An updated and complete list of the schedules is published annually in **Title 21 Code of Federal Regulations (C.F.R.) §§ 1308.11 through 1308.15**. Substances are placed in their respective schedules based on whether they have a currently accepted medical use in treatment in the United States, their relative abuse potential, and likelihood of causing dependence when abused. Some examples of the drugs in each schedule are listed below.

Schedule I Controlled Substances

Substances in this schedule have no currently accepted medical use in the United States, a lack of accepted safety for use under medical supervision, and a high potential for abuse.

Some examples of substances listed in Schedule I are: heroin, lysergic acid diethylamide (LSD), marijuana (cannabis), peyote, methaqualone, and 3,4-methylenedioxymethamphetamine ("Ecstasy").

Schedule II/IIN Controlled Substances (2/2N)

Substances in this schedule have a high potential for abuse which may lead to severe psychological or physical dependence.

Examples of Schedule II narcotics include: hydromorphone (Dilaudid®), methadone (Dolophine®), meperidine (Demerol®), oxycodone (OxyContin®, Percocet®), and fentanyl

(Sublimaze®, Duragesic®). Other Schedule II narcotics include: morphine, opium, codeine, and hydrocodone.

Examples of Schedule IIN stimulants include: amphetamine (Dexedrine®, Adderall®), methamphetamine (Desoxyn®), and methylphenidate (Ritalin®).

Other Schedule II substances include: amobarbital, glutethimide, and **pentobarbital**. ****(Euthasol contains pentobarbital, but it is a Schedule III drug because it is mixed with other substances. Just be aware that if you order some other version of pentobarbital that it may be a Schedule II drug that has more stringent ordering, storage, and inventory requirements)**.

Schedule III/IIIN Controlled Substances (3/3N)

Substances in this schedule have a potential for abuse less than substances in Schedules I or II and abuse may lead to moderate or low physical dependence or high psychological dependence.

Examples of Schedule III narcotics include: products containing not more than 90 milligrams of codeine per dosage unit (Tylenol with Codeine®), and buprenorphine (Suboxone®).

Examples of Schedule IIIN non-narcotics include: benzphetamine (Didrex®), phendimetrazine, ketamine, and anabolic steroids such as Depo®-Testosterone.

Schedule IV Controlled Substances

Substances in this schedule have a low potential for abuse relative to substances in Schedule III.

Examples of Schedule IV substances include: alprazolam (Xanax®), carisoprodol (Soma®), clonazepam (Klonopin®), clorazepate (Tranxene®), diazepam (Valium®), lorazepam (Ativan®), midazolam (Versed®), temazepam (Restoril®), and triazolam (Halcion®).

Schedule V Controlled Substances

Substances in this schedule have a low potential for abuse relative to substances listed in Schedule IV and consist primarily of preparations containing limited quantities of certain narcotics.

Examples of Schedule V substances include: cough preparations containing not more than 200 milligrams of codeine per 100 milliliters or per 100 grams (Robitussin AC®, Phenergan with Codeine®), and ezogabine.

III. Personnel Definitions

Researcher in the DEA registration application is authorized to use controlled substances and is responsible to understand and comply with all applicable rules and regulations by the Federal Drug Enforcement Agency (DEA) and the State of North Dakota for registration, purchase, use, and proper disposal of controlled substances in his/her research work. The Researcher retains all liabilities for loss, theft, or misuse of any controlled substance acquired through his/her registration. The use of controlled substances is approved for

individual researchers and only for the research location(s) described in their DEA application. Therefore, researchers must not distribute, transfer, or share the controlled substances to non-licensed researchers or other PIs. To do otherwise is considered a diversion of controlled substances and is against the DEA rules and regulations.

Authorized Laboratory Personnel are research staff, including graduate students and postdoctoral scholars, working under the direct supervision of a researcher. In addition to the researcher and authorized agents, the authorized laboratory personnel (**also known as daily users**) may participate in using controlled substances during experiments or treatments of research animals. Each licensed researcher is responsible for authorizing specific roles, and providing required training for proper handling of controlled substances.

The licensee/registrant holds ultimate responsibility for restricting access to the controlled substances. The licensee/registrant is required to keep an updated Authorized Personnel Log on file that lists the authorized agents and authorized personnel at a registered location.

IV. Ordering Procedure for Controlled Substances in Sudro

a. Controlled substances will be ordered by Janet. Contact Janet to discuss what controlled substances you need to order. She will purchase through vendor Midwest Veterinary Supply, Inc., Lakeville, MN.
b. When controlled substances arrive, Office personnel in 136 will immediately notify Dr. Shashi Bhushan.
c. Dr. Shashi Bhushan will receive the drug, verify the order, sign and date the invoice, log the order, and properly secure the order.
d. Logging and properly securing the order may be done in conjunction with the end user who will be a documented Authorized Laboratory Personnel.

V. Storage Requirements

Upon acquisition, controlled substances must be stored in a securely locked, substantially constructed cabinet, located where access is limited to authorized individuals only. Our storage location is controlled by card access and individual keys.

The general security requirements are available at https://www.deadiversion.usdoj.gov/21cfr/cfr/1301/1301_71.htm .

Controlled substances must be maintained behind a minimum of two (2) locks. The storage of the controlled substances can be within: (a) a locked cabinet in a locked room and the 'locked room' must always be locked when it is not occupied by either the registrant or an authorized user; or (b) a locked inner cabinet in a locked cabinet.

Locks may be cipher locks (combination locks) or key locks. If key locks are used, then (a) the two locks must be keyed differently; (b) two keys must not be stored together (i.e., not on the same key ring); (c) both keys must be safeguarded, and not in public sight; and (d) individuals with access to the keys must be approved by the licensed researcher.

Controlled substances must never be unattended at any time.

VI. Record Keeping

Record keeping must include (**templates included in the Appendix**):

1. Records of receipt
    - The date the substance was received at the storage location
    - The substance name assigned by the manufacturer
    - The manufacturer of the substance or vendor
    - The quantity and strength of the substance added to the storage area
    - Name of individual adding product to the inventory

2. Records of use (including loss or theft)
    - Date used or disposal of waste
    - Quantity dispensed for aliquots, dilution
    - Strength dispensed (concentration and volume)
    - Name of person (authorized user)
    - Quantity remaining in inventory

3. Records of disposal of controlled substances
    - DEA Form 41 does not have to be submitted to DEA. Keep with Inventory.

4. Biennial Inventory: This Inventory will be performed by Dr. Shashi Bhushan and a witness. Please always have your General Inventories up to date as this will make the Biennial Inventory go smoothly.

5. Inventory and Inventory Audits: The licensed researcher must maintain a complete and accurate accounting of all controlled substances, from the time they are ordered until they are used up or disposed of. These inventories and records should be kept at the location where the licensed activity is conducted, and must be readily available for inspections. Chemical inventories of controlled substances must be perpetual and up-to-date. All records of inventories and logs of controlled substances shall be kept a minimum of two years and be available for inspections and copying by a member of DEA. The licensed researcher should maintain copies of the records documenting the transfer and disposal of controlled substances for a period of at least two years.

Labeling Containers: controlled substances that are removed from their original packaging and compounded, diluted or combined, must be labeled with a new control number, the final concentration, the amount per container and the expiration date.

VII. Disposal

The disposal of controlled substances is the final action necessary to ensure proper management of controlled substances.

Each licensed researcher is ultimately responsible to ensure controlled substances are properly disposed of and all necessary disposal forms are completed and submitted to the appropriate agency. A licensed researcher must dispose of outdated, damaged, or otherwise unusable or unwanted controlled substances. Please refer to NDSU SOP for destruction of controlled substances for this details related to this process (https://www.ndsu.edu/fileadmin/research/documents/IACUC/ndsu_guidelines/Pharmaceutical_Management.pdf).

Residual amounts of **non-recoverable** waste may remain in the used (empty) syringes or vials after the administration or use of a controlled substance. If this waste amount **cannot** be drawn out with a syringe (i.e., is non-recoverable), you may discard the empty controlled substance container in a biohazard sharps container. There is no need to record the disposal of the non-recoverable waste separately on the usage log if the container balance is zeroed out on the usage log upon disposal of that container. Biohazard sharps containers are collected by the Safety Office and incinerated.

If recoverable waste remains from container spillage (e.g., puddle on the bench top or floor):

1. Place cleanup refuse (e.g., paper towels or bench paper) from a spilled container into a secure biohazard or biohazard sharps container (both are collected by the Safety Office and incinerated).
2. Record spillage amount on the usage log **and** DEA Form 41 (Keep Form 41 in Inventory).

VIII. References

https://researcherhandbook.research.uiowa.edu/sites/researcherhandbook.research.uiowa.edu/files/CSGguide.pdf

https://www.deadiversion.usdoj.gov/index.html

http://research-compliance.umich.edu/controlled-substances/controlled-substance-research-policies

IX. Appendix – Logging Templates

Controlled Substance Research Records

General Inventory Log

Controlled Substance: **Schedule (II-V):**

Container Type: **Container Size:** **Concentration:**

DEA Registrant name: Dr. Jagdish Singh

DEA Registrant Address (as appears on DEA Certificate of Registration):

1401 Albrecht Blvd., Sudro Hall 207A1B, Fargo, ND 58108-6050

***Container ID # is assigned by lab upon drug receipt**

Date	Amount Received	*Container ID #	Amount Dispensed	Container Balance	Authorized Personnel Dispensing	**Comments** (Received from supplier, transferred to multi-dose or dilution log, or sent for disposal)

Controlled Substance Research Records

Multiple Dose Usage Log

Controlled Substance: **Schedule (II-V):**

Container Type: **Container Size:** **Concentration:**

Lot # **Expiration:**

Beyond Use Date: **Container ID #:**________________________________

DEA Registrant name:

DEA Registrant Address (as appears on DEA Certificate of Registration):

1401 Albrecht Blvd., Sudro Hall 207A1B, Fargo, ND 58108-6050

***Container ID # is assigned by lab upon drug receipt**

Date	Number of Animals	Amount Withdrawn	Balance	Authorized Personnel Dispensing	Amount Wasted	Witness Initials	Amount Disposed (ml)	Comments (waste details)

Controlled Substance Research Records

Diluted Solution Usage Log

Controlled Substance: **Schedule (II-V):** ***Container ID #**

Container Type: **Container Size:** **Concentration:**

Lot # **Expiration:**

Volume or Weight Used for Dilution:

Diluent solution and volume: **Final ratio/ concentration:**

Beyond Use Date:

DEA Registrant name: Dr. Jagdish Singh

DEA Registrant Address (as appears on DEA Certificate of Registration):

1401 Albrecht Blvd., Sudro Hall 207A1B, Fargo, ND 58108-6050

***Container ID# is assigned by lab upon drug receipt**

***Dilution ID# is assigned by lab when dilution is mixed**

Date	Number of Animals	Amount Withdrawn	Balance	Authorized Personnel Dispensing	Amount Wasted	Witness Initials	Amount Disposed (ml)	Comments (waste details)

Authorized Personnel Log Instructions

Each licensee/registrant or research laboratory must keep an updated copy of this form at all times. This includes any status changes of employees (job responsibilities, new hires, vacated positions). Only individuals listed shall be granted approval to work with controlled substances. State and DEA Diversion Investigators expect the registrant to have an updated copy on file to review during inspections.

Grant Authorized Agent status to a minimum number of staff to mitigate risk of drug diversion. Authorized agents are designated by the licensee/registrant to oversee drug ordering, receiving, distribution to authorized personnel for research use, witnessing of drug waste, and maintaining access to the safe or locked cabinet.

Authorized personnel may work with controlled substances as part of their research experiments, but only the licensee/registrant or their authorized agent(s) may distribute controlled substances.

Authorized Personnel Log

Department: Pharmaceutical Sciences

Name/Address as listed on DEA Certificate of Registration: Dr. Jagdish Singh, 1401 Albrecht Blvd., Sudro Hall 207A1B, Fargo, ND 58108-6050

DEA Registration #_____

Name (Last, First)	Job Title	NDSU ID#	Signature	Access Granted Date	Access Removed Date

How to get Added to an IACUC Protocol

1. Enroll in the University's Occupational Health Program.
    a. The guidelines that explain NDSU's Occupational Health Program can be found here: https://www.ndsu.edu/fileadmin/policesafety/docs/OccupationalSafetyandEnvironmentalHealth.pdf. You should read these Guidelines to familiarize yourself with the program.
    b. The person to be added to the protocol (new Graduate Student/Post Doc/Faculty or Staff Member) fills out the "Health Assessment for Persons Working on Animal Projects" form, which can be found here: https://www.ndsu.edu/fileadmin/vpfa/forms/UPSO-IACUC_HealthAssess.pdf
    c. The Supervisor of that person fills out the "Hazard and Risk Assessment" form, which can be found here: https://www.ndsu.edu//fileadmin/vpfa/forms/UPSO-IACUC_HazardRiskAssessment.pdf
    d. Once the Hazard and Risk Assessment and Health Assessment Forms are ready, the enrollee should call or email Jennifer Baker Quenette, the Associate Director of Public Health and Safety, to make an appointment.
        i. Jennifer's contact information:
        Jennifer Baker Quenette
        Associate Director Public Health and Safety
        Phone (701) 231-6740
        Fax (701) 231-6739
        E-mail: **jennifer.quenette@ndsu.edu**
    e. Bring your two forms with you to the appointment with Jennifer. At the appointment, Jennifer will answer any questions you have regarding the Occupational Health Program and she will mail your forms for you to an Occupational Health Provider.
    f. The Occupational Health Provider will review your information and determine if there are any recommendations needed for you to safely do your work with animals. The Provider will send the results of their review to Jennifer who will then email you the results and notify the IACUC that you have enrolled in the program. This process takes approximately 7-10 days.
    g. Enrollment is a one-time event **unless** you: 1) have changes in your health status, or 2) your hazards and risks associated with your work change. If either of these scenarios occur, then you should fill out new enrollment forms and re-submit them to be reviewed by a Provider again following the steps listed above. If you have any questions regarding the Occupational Health program at any time you should contact Jennifer to discuss them.
    h. If you have previously enrolled in the Occupational Health Program at NDSU (i.e. you worked on another animal project on campus and were previously on another IACUC protocol) you should come talk to Dr. Shashi Bhushan and we can discuss if you may need to re-enroll, and how to do it.
2. Complete online IACUC training (you can do/begin this while your enrollment in the Occupational Health Program is pending).
    a. The IACUC requires online training through CITI, which you can find instructions for completing here:

https://www.ndsu.edu/research/for_researchers/research_integrity_and_compliance/institutional_animal_care_and_use_committee_iacuc/training/

i. If you have questions about CITI training, please contact the IACUC Administrator, Tania Molden:

1. Tania's contact information:
   Tania Molden
   Rm 132, Research 1
   NDSU Research & Technology Park
   701.231.8114
   tania.molden@ndsu.edu
   ndsu.iacuc@ndsu.edu

b. You will also need to complete the NDSU Safety Office training module entitled "Animal Care and Use Training" found here (scroll down just a bit, under the heading "Annual Position Dependent and Other Requirements"):
https://www.ndsu.edu/police_safety/annual_notices_and_training/

i. If you have questions about this training, you can contact Jennifer Baker Quenette (please see contact information above in the Occupational Health Program section above).

3. Complete in-person training. In-person training can be scheduled any time **after enrollment in the Occupational Health Program is complete**. We want to make sure it is safe for you to work with animals before we conduct in-person training.
   a. The IACUC requires in-person training (or if you have previous animal experience, documentation of skills) before you can be added to a protocol.
   b. Please contact Dr. Shashi Bhushan to set up in-person training when your Occupational Health Program enrollment and IACUC online training are completed (Shushi.bhushan@ndsu.edu; 231-1843; office 222M). You will attend animal facility orientation first then hand-on training. The standard information covered during orientation includes an overview of the facility operational guidelines, available resources, and animal husbandry. The in-person training includes mouse handling and restraint/ husbandry. Other skills and techniques can/will be covered if necessary for the protocol. Training can be updated in the future on an as-needed basis when new skills are added.
   c. People requiring training to be added to rat protocols should ask the IACUC for recommendations to complete in-person training (Tania Molden's contact information is in the Online Training section above). These investigators should still complete a Facility tour and orientation with Dr. Shashi Bhushan before beginning their work, but this can occur any time after occupational health enrollment has been completed. Please contact him when you are ready to complete this portion of your training (Shushi.bhushan@ndsu.edu; 231-1843; office 222M).
4. After steps 1-3 have been completed, the IACUC is usually pretty good about notifying Dr. Shashi Bhushan when people from Pharmaceutical Sciences are added to protocols, but please let him know for sure when this process is complete. He will make sure you have a lab coat, name tag, and can help make sure your access to 207 has been activated (if applicable). Thank you!

SOP for Facility Emergencies Impacting Sudro 207

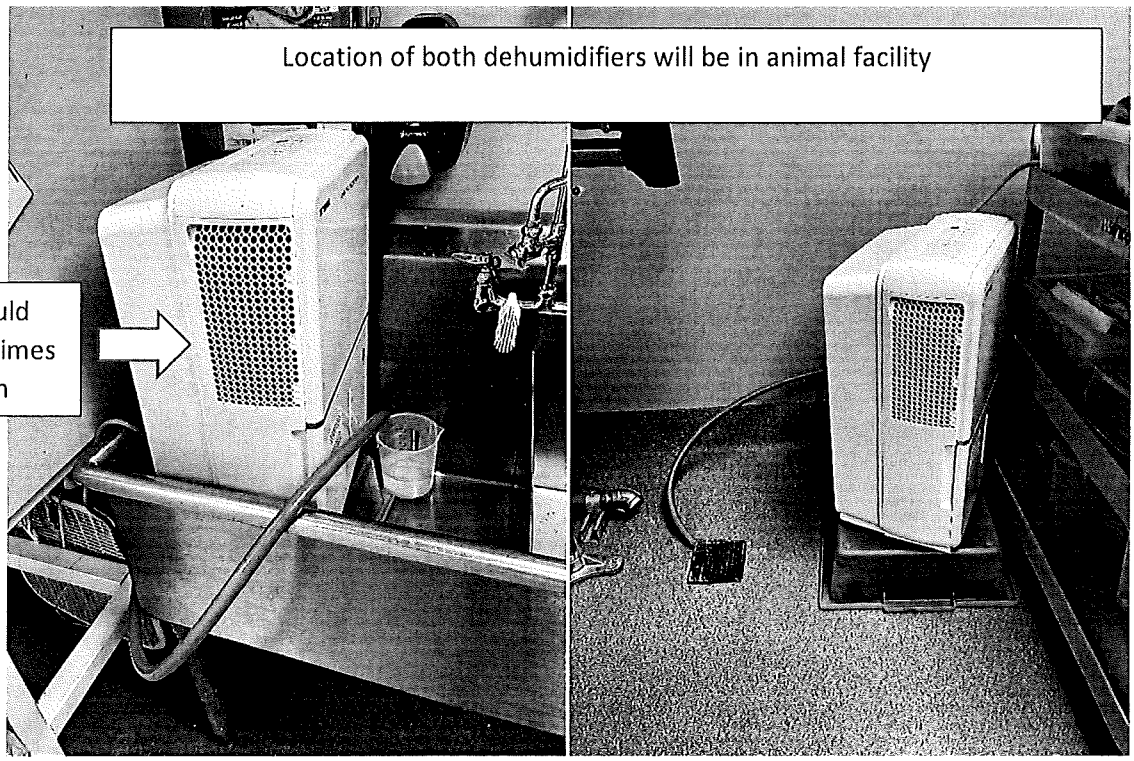
1. Alarm notifications generated from Johnson Controls are programmed to go to the following people as of 2/4/20 (all at once, not sequentially):
    a. Dr. Jagdish Singh (701-261-3180)
    b. Dr. Shashi Bhushan (701-729-3651)
2. Alarm notifications during normal working hours will be called in to Facilities Management for repair with the necessary immediacy dependent on the type of repair needed:
    a. Number for Facilities Management: 231-7911
    b. Number for Cory Hanson (HVAC): 231-6678/701-866-1742
    c. Number for Kyle Kraft (Electrical): 231-9330/701-793-9917
    d. Number for Craig Gast (Locksmith): 231-7302/701-936-0521
3. In the event of an after-hours alarm notification:
    a. Notified staff member(s) shall come to Sudro to inspect the Facility and gather information on the situation. Person (or persons) traveling to Sudro will text others on the notification list to let them know they are performing this task.
    b. Once more information is known (RE: temperature in space(s); HVAC alarm/is down; power status, etc.), call is placed to NDSU Police (231-8998). NDSU Police will notify Facilities Management staff on call if necessary.
        i. It is possible that Facilities Management will be notified before a notified staff member gets to Sudro since temperature alarms are also sent to the University Police who notifies Facilities Management. They may already be in Sudro 207 when you arrive, or they may call Dr. Shashi Bhushan before coming to 207. Both have occurred. The on-call Facilities Management personnel have the ability to contact other members of Facilities Management if/when necessary and they also have additional information regarding issues that may be impacting campus (i.e. They have access to online Johnson Controls information and they communicate with off campus entities such as the power company).
        ii. **If power is out in building, card access readers to building and Sudro 207 are still supposed to work for up to 36 hours.**
    c. A follow-up text message will be sent to members of the notification list with an update on status of animal holding rooms, what action is being taken, and if additional help is needed.
    d. As soon as reasonable, Janet Krom will be notified (231-5919) of the Facility emergency. She can assist with Departmental notifications, and other coordination with Facilities Management personnel.
4. In the event that chambers housing animals cannot provide adequate housing conditions (i.e. sufficient temperature, ventilation, lighting), animals will be cared for in the following way:

SOP if Animal Facility is too hot

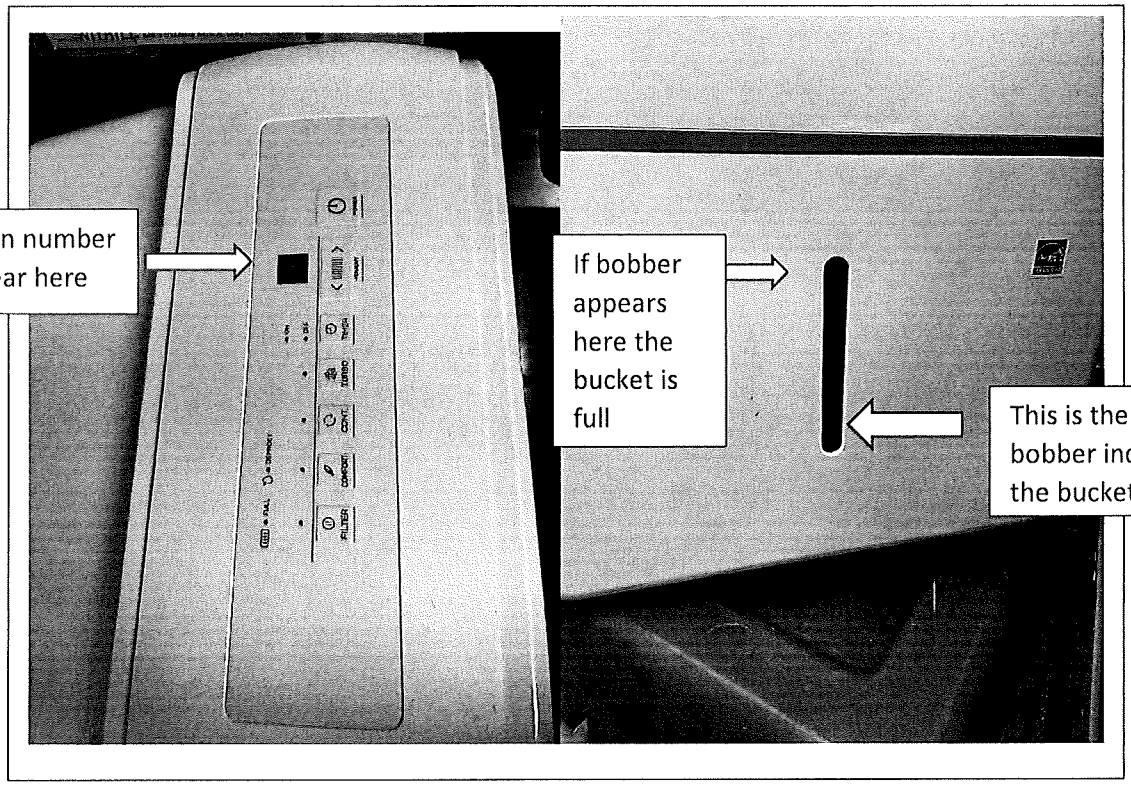
Appropriate Temperature range is: Between 65-75 F

Appropriate Humidity range is: Between 40-60%

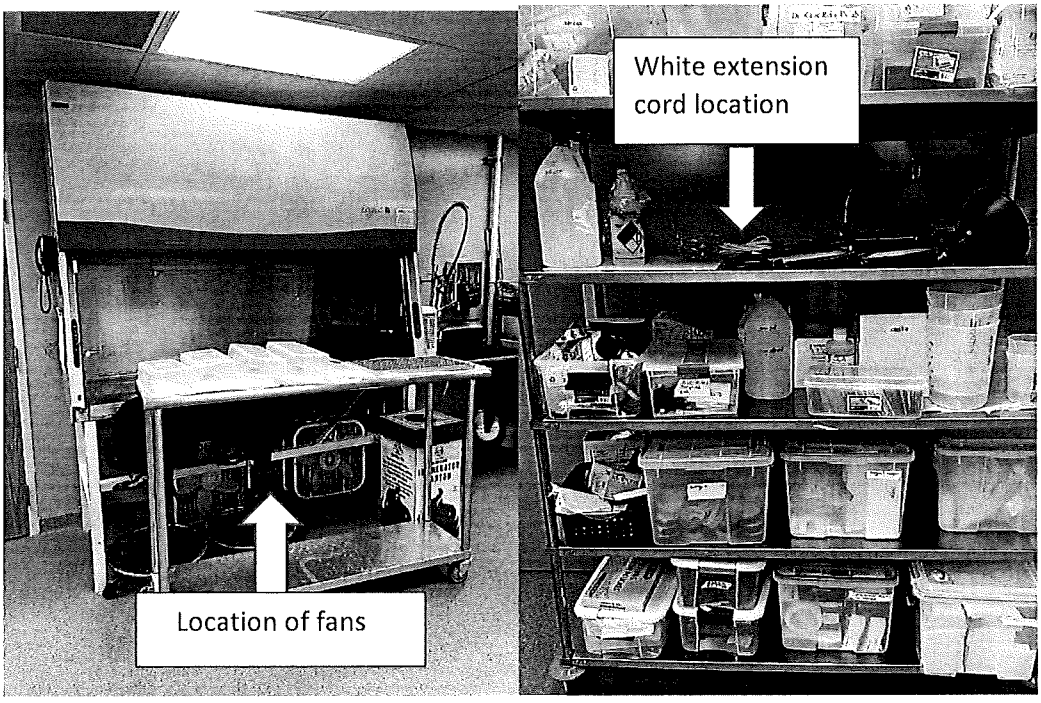
1. Two dehumidifiers will be placed in the animal facility. One will be located by the clean room under the contamination shower. The second dehumidifier will be located in the large sink across from chamber 2.



   a. How to know dehumidifier is working properly
      i. Air should be blowing out of each side vent
         1. If not check:
            a. If power button has been turned off
            b. If outlet needs to be reset (you can reset outlet by pushing in the buttons that are between each plug in)
            c. Check if the water collection bucket at the bottom of the dehumidifier- IF full the red bobber will indicate as seen in the image below
               i. if full pull on each side handle located on the bottom of the dehumidifier to release the bucket and pour out all of the bucket's containments and replace bucket by pushing it into the bottom of the dehumidifier.
            d. Check if the green hose is still attached to the back of the dehumidifier. Make sure hose is not kinked and is leading to a drain.



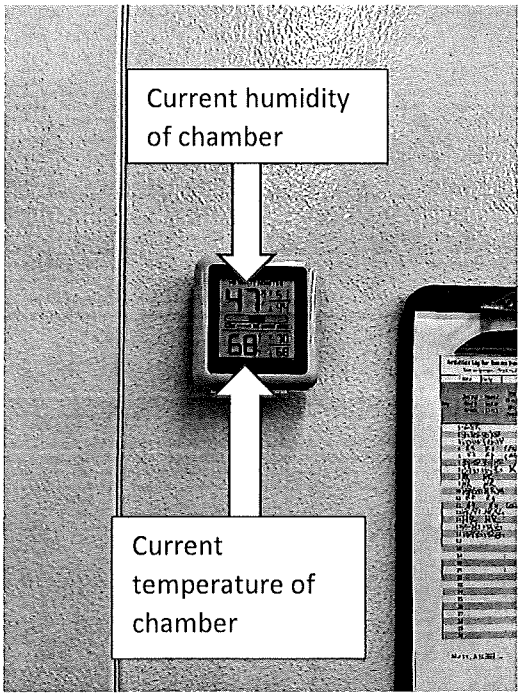
2. Set up Fans. There are 4 fans located under the hood in the main area of the animal facility.
    a. Place fans all over the animal facility and turn them on high.
        i. If needed there are extension cords on the rack outside of the mouse room



3. Contact Facilities management

a. NDSU number – 1-7911

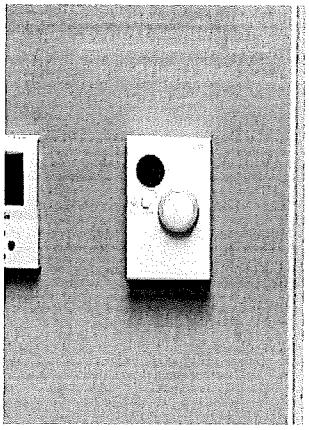
4. Contact Cori Hanson from HVACK. HVACK is responsible for monitoring all temperatures and humidifies for the animal facility
    a. Office number – 1-6678
    b. Cell phone number- 701-866-1742
5. Have a designated person to check on the Rat room.
6. IF A CHAMBER OR CHAMBERS ARE NOT FUNCTIONING
    a. Each chamber has a temperature and humidity monitor on the wall as seen in the image below.
    b. If temperature in the chamber is extreme:
        i. Chamber doors may be left propped open to allow for air circulation from the fans.
        ii. animals can be moved into the procedure room/common area (Check common room thermostats prior to moving animals to a new space)



Appropriate Temperature range is: Between 65-75 F

Appropriate Humidity range is: Between 40-60%

PREFROM WELFARE CHECK ON ALL ANIMALS



FYI there are additional thermostats as seen above on the walls in the common areas.

If high temperature is sustained or power goes down for extended period of time

a. Individually ventilated cage (IVC) racks with mice may also be temporarily relocated into the space just outside of the chambers after rats have been moved if conditions are more stable in this space.
b. The Allentown IVC Racks hold cages that default to static housing if power is lost. Mice on these racks will lose their source of HEPA filtered inlet and exhaust air and appropriate negative pressure containment (if in place) would be lost; however, these mice are not in danger of hypoxia in the event of a power outage.
c. If mice are housed on the Innovive rack in dual filtered Innorack lids they have 6 hours before they are in danger of becoming hypoxic due to loss of rack supported inlet air. The options are:
    i. Generator support for the Innovive IVC Rack.
    ii. Switching the lids on these cages out for static housing lids to allow for appropriate gas exchange from room air.
        1. Performing lid exchange outside of a biosafety cabinet may present an unacceptable exposure to mice and/or personnel.

5. In the unlikely event that power or HVAC cannot be restored in a time deemed reasonable to restore livable conditions for mice and/or rats, then we will proceed with humane euthanasia of the animals.
    i. Before we move forward with this option, all efforts to involve the IACUC and/or the Attending Veterinarian will be made to discuss the situation and alternatives.
    ii. Methods available for euthanasia are CO_2 (requires power), isoflurane overdose (power independent), and/or Euthasol (power independent). Secondary methods of euthanasia will be employed to ensure death that are consistent with species, age of the animal, and skill/training of personnel.
6. If steps 5 or 6 must be employed, contact of laboratory personnel will commence immediately by one or more of the notified personnel. Contact information on the Chamber doors will be used to notify personnel from the labs with impacted animals. Judgement will be used as to the number of laboratory personnel that need to be called in for assistance. More personnel from

the Department and/or campus may be needed if many animals need to be moved, if animals need to be moved out of Sudro, or if animals are going to be euthanized.

Sudro Animal Facility Card Access Guidelines

Purpose: The purpose of these guidelines is to delineate who may work in the Sudro Animal Facility, what types of privileges are granted to different groups of workers, and to define the requirements for being granted the ability to work in the Animal Facility.

I. Defining Access to the Animal Facility

a. Pharmaceutical Sciences Faculty members, post-docs, research scientists, paid visiting scholars, graduate students (including graduate students admitted under the Cellular and Molecular Biology Interdisciplinary Program and are solely mentored by a Pharmaceutical Sciences Faculty member), and laboratory technicians.
    i. After meeting all requirements, this category of personnel will be granted full, 24/7 access. They may work in the Animal Facility unsupervised.

b. COBRE Faculty members, post-docs, research scientists, paid visiting scholars, graduate students (including graduate students admitted under the Cellular and Molecular Biology Interdisciplinary Program and are solely mentored by a COBRE Faculty member), and laboratory technicians.
    i. After meeting all requirements, this category of personnel will be granted full, restricted hours access. They may work in the Animal Facility unsupervised.

c. NDSU faculty members and/or graduate students, post-docs, paid visiting scholars, and laboratory personnel who are collaborating with Pharmaceutical Sciences or COBRE Faculty members.
    i. After meeting all requirements, this category of personnel will be granted supervised access. These researchers will not have their own card access. At all times, they can only work in the Animal Facility together with another researcher who does have full access, and who is supervising the work.

d. Graduate Students whose primary department is other than Pharmaceutical Sciences, but are co-mentored by Pharmaceutical Sciences faculty.
    i. After meeting all requirements, this category of personnel will be granted supervised access, upon approval of the Animal Facility Director. These researchers will not have their own card access. At all times, they can only work in the Animal Facility together with another researcher who does have full access, and who is supervising the work.

e. Professional students (PharmD students in their P3 or P4 year) who would like to perform research with Pharmaceutical Sciences faculty.
    i. After meeting all requirements, this category of personnel will be granted supervised access. These researchers will not have their own card access. At all times, they can only work in the Animal Facility together with another researcher who does have full access, and who is supervising the work.

f. Undergraduates who work in Pharmaceutical Sciences or COBRE laboratories.
    i. After meeting all requirements, this category of personnel will be granted supervised access, upon approval of the Animal Facility Director. These researchers will not have their own card access. At all times, they can only work in the Animal Facility together with another researcher who does have full access, and who is supervising the work.

g. Undergraduates who work in other Departments (collaborators).
    i. These individuals will not be given permission to work in the Animal Facility. They may not work in the Animal Facility supervised, or unsupervised.
h. Children (under age 18) who participate in high school programs (for example, Governor's School).
    i. These individuals will not be given permission to work in the Animal Facility. They may not work in the Animal Facility supervised, or unsupervised.

II. Requirements that must be met before working in the Animal Facility

a. Enrollment in the Occupational Health Program for people who work with animals
    i. A description of the program can be found here: https://www.ndsu.edu/fileadmin/policesafety/docs/OccupationalSafetyandEnvironmentalHealth.pdf. You are encouraged to read this description and ask any questions you have to your PI, Jennifer Baker in the University Police and Safety Office, or Dr. Shashi Bhushan.
    ii. In order to enroll in this program, the employee/researcher fills out a health assessment form that can be found here: https://www.ndsu.edu/fileadmin/vpfa/forms/UPSO-IACUC_HealthAssess.pdf. This form is private. Only the occupational health provider will review this form.
    iii. The PI/supervisor/employer fills out a hazard and risk assessment form that can be found here: https://www.ndsu.edu//fileadmin/vpfa/forms/UPSO-IACUC_HazardRiskAssessment.pdf. It is OK for the researcher and the supervisor to work together to fill out this form; however, the supervisor must review and sign the hazard and risk form.
    iv. When both forms have been completed, please contact Jennifer Baker to set up a short visit:

        Name: Jennifer Baker
        Email: **jennifer.baker@ndsu.edu**
        Phone: (701) 231-6740
        Department: University Police & Safety Office
        Title: Associate Director of Public Health & Safety
        Office Auxiliary Enterprise 106

        Jennifer will answer any questions you have regarding the Occupational Health program then she will mail the two forms into an occupational health provider.
    v. In about a week the occupational health provider will send a message back to Jennifer, which she will then share with you, with any recommendations for you to work safely with animals. Jennifer will communicate your enrollment completion with the IACUC.
b. Complete all training required by the Compliance Committees.
    i. Depending on the protocol(s) associated with a project, this will include requirements by the IACUC and may also include requirements by the Institutional Biosafety Committee and/or the Institutional Review Board. The

Administrators of the compliance committees will assign required training to a researcher when a PI requests that they be added to a protocol.

ii. This includes on-line training (CITI and NDSU University Police and Safety Office). The IACUC also requires in-person training. The in-person training for mice may currently be completed with Dr. Shashi Bhushan.

c. Complete a walk-through/orientation of the Animal Facility.
   i. This is a one-time requirement when a worker is new to the Animal Facility. This visit will be used to show the new worker where everything is located in the Animal Facility, discuss applicable SOPs, give instructions on equipment operation, and to answer questions.
   ii. This orientation may be combined with IACUC in-person training, which is required to be added to an IACUC protocol.
   iii. Please arrange for this orientation (and in-person training if needed) once enrollment in the Occupational Health Program has been completed.

III. Card Access

a. Card access will be granted to individuals who are in qualified groups and who have met all of the requirements of working in the Animal Facility.
b. Upon approval by the Department, the Key Control Official for the building will process required paperwork to grant access to the Animal Facility, and to the building.
c. Dr. Shashi Bhushan will verify with Janet that the individual has met all requirements as outlined in section II of this SOP.
d. Dr. Shashi Bhushan will send the names and ID numbers of individuals to Janet, who will then forward them to the Key Control Official.
e. Being granted card access to this space is a privilege. Card swipes are logged and activity that occurs in these spaces can and will be traced back to whomever swiped their card to enter at a specific time if the need arises.
f. Cards are not to be loaned to another individual to enter these spaces. Card access is granted to individuals, not ID cards. Individuals will be held responsible for whatever happens in a space when their card is used.
g. Adherence to responsible use of card access is outlined in the following College and University Policies:
   i. College of Health Professions Policy 3.01, Student Academic and Conduct Standards, www.ndsu.edu/healthprofessions/college_information/policy_manual/
   ii. https://www.ndsu.edu/fileadmin/policy/703.pdf
   iii. https://www.ndsu.edu/fileadmin/policy/707.pdf

Department of Pharmaceutical Sciences
Guidelines

Ordering Procedures

- ✓ The first step is to fill out a Request to Order sheet. (Please see one of the office staff for the electronic link to be sent to you.)
- ✓ Please type your request (do not hand write) with the following information: vendor name, vendor phone, quantity, unit (please indicate case, pack, or each), catalog number, brief description of the product(s) you want ordered, price, funding information, requestor's name, date requested, and faculty approval. There will be a line that says, "Other Details" please add Promo Codes, Quote #'s, Delivery option, etc. on this line. No orders will be placed if the faculty does not sign off on the order sheet.

- ✓ **If your information on top is not filled out completely your order will not be processed and will be sent back to you to correct this information.**

- ✓ Once you've filled it out completely, please send it to ndsu.psciorders@ndsu.edu. In the SUBJECT line please type (your name and the company). Please send only 1 order attachment per email. All orders need to be in to us by noon each day. The "Order Reference #" line should be left blank, we will fill it in after we order from the company. **Please see next page for an example of the order sheet.**

- ✓ Quotes: **No Quotes will be ordered without the correct shipping and billing address on the quote. Make sure when you ask for the Sales Rep to repeat the shipping and billing address that it's correct. (Our correct shipping and billing address is located at the end of this booklet). Please do not use your lab/office number on the quote for the address.**

- ✓ After your order arrives, remove the packing slip and check to make sure you have received every item that is listed on it. Keep the packing slip in your lab for 1 year. If you receive an item/s that is NOT yours, please bring it up to the office immediately so we can check to see who it belongs to. All deliveries will be delivered to Sudro 123 (Dean's Office) for you to pick up. If picking up a package after hours, (7:30-4:00, M-F, Summer/breaks and 8:00-5:00 during the academic year) please remember to bring your ID with you so you can get back to our side of the building.

✓ When the invoice arrives, it will be matched with the order form. The order form along with the Invoice will be placed in a folder and placed in the PI's mailbox for their initials indicating that they have received item/s on the Invoice, please use pen and NOT PENCIL to initial the invoices. The PI will give it back to the office staff and the process will start in paying the Invoices that we receive.

Request to Order
Department of Pharmaceutical Sciences
1401 Albrecht Blvd., Sudro Hall Room 136, Fargo, ND 58105-5716

Vendor Name:

Vendor Phone: **Internet Address:**

Vendor Address: **Room # for Airgas:**

PO#: **Order Reference#**

Qty	Units (Cs, Pk)	Catalog #	Brief Description	Unit Price	Total Price

Other details, if necessary (Promo codes, quote numbers):

Order Total:

Funding Info & Approval

Project #: (i.e. FAR0011234):

Other Funding Info:

Requester's Name:

Date Requested:

Approved By:

PO# line should be left blank – we will fill that in.
Order Reference# should be left blank – this is where we put the order# once the order has been placed with the vendor.

*****For any equipment orders over $10,000, fill out an order sheet and give to Janet. Anything not ordered from VWR or Fisher needs to have an Alternative Procurement Request Attached*****

Sequencing Orders

When ordering from IDT or any other company for sequencing, please email ndsu.psciorders@ndsu.edu and request a PO # **before** ordering. Make sure you type on the order sheet that you have already ordered the sequencing along with the date. Send completed order form to ndsu.psciorders@ndsu.edu.

Individual Purchases

Supplies that cannot be ordered through the department can be purchased locally or online. In order to be reimbursed after making the purchase, fill out an order sheet along with all itemized receipts and send it to ndsu.psciorders@ndsu.edu and the HHS Business Coordinator for Pharmaceutical Sciences will process the reimbursement.

If the purchase is made with a credit card, please include:

- Copy of store receipt (with the last 4 digits of your cc number listed)
- A photocopy of your credit card showing your name and only the last 4 digits of your credit card. Please cover up the beginning part of your credit card number before making the copy. Keep a copy of this so that next time you get reimbursed for something you have it on hand. I will not keep a copy of your credit card so you will have to send this along with all of the other receipts when asking for a reimbursement.
- **Using someone else's credit card when buying supplies is not allowed.**

Bookstore Purchases

Faculty and staff can charge to the department with prior approval from Janet. (*No charging below $5.00*). Please attach an order sheet along with the receipt from the bookstore to the office staff.

Airgas Orders

An order sheet needs to be filled out including funding and a signature from the PI. Only "department office staff" can order from Airgas. Please provide:

- the product you want ordered
- number of tanks you are ordering
- how many tanks you are returning
- what room number the tank/s are in

Liquid Nitrogen:

The only tank that Airgas will replace is the big Liquid Nitrogen tank in Sudro 36. Each lab is responsible for refilling their own small tank. There is a logbook for you to fill out when refilling your small tanks. Please include date, name and an estimate of how much liquid nitrogen you used.

When the tank is empty, please let Ashish in Dr. Venkatahalem's lab or one of the department office staff know so that we can call Airgas and order more. Orders must be placed by Noon on Thursday for the following Tuesday delivery.

Please send all completed order forms to ndsu.psciorders@ndsu.edu. PSCI faculty that are using the Liquid Nitrogen are on a rotating basis on which PI is paying for the refill.

Animal Facility

If doors to the animal individual rooms are not sealing properly and you notice an increased odor, contact Shashi or one of the department office staff right away.

Laundering of Lab Coats

Each Tuesday, Shashi will bring down the dirty lab coats from the animal facility to the area outside of Sudro 103. Make sure all dirty lab coats from the animal facility are in the bag before Tuesday.

Any dirty lab coats from your lab should be placed in the laundry bin by Tuesday also.

Common Cell Culture Incubator—Sudro 36

Recommended that the water be changed every **three weeks**. Those using the incubator should share this responsibility. We need to have a healthy cell culture practice and save the students the horror of ruining one another's experiments. Please use the log book to document when you change the water.

Common Equipment Reservation List

Reservations for the Animal Facility are reserved thru Shashi

Equipment	Location	Trains/Maintains
Biosafety Cabinet (outside of 207)	Sudro 207 (big hood)	Shashi 1-1843
Biosafety Cabinet (nude mice-caged)	Sudro 207A1C	Shashi 1-1843
Ultrasound/Procedure Room	Sudro 207A1B	Shashi 1-1843
Procedure Room (Surgical)	Sudro 207A1B	Shashi 1-1843
Isoflurane	Sudro 207A1B	Shashi 1-1843

Reservations for the Common Equipment are reserved thru the ndsu.pscireservation@ndsu.edu email

Equipment	Location	Trains/Maintains
CD Machine	Sudro 36	Dr. Vetter 1- 5281
Zeiss Confocal Microscope	Sudro 102	Dr. Mathew 1-8214
Olympus Confocal (old)	Sudro 103	Dr. Venkatachalem 1-6371
Developer (Dark Room)	Sudro 6A	Saber 1-5169
Leica Fluorescence Microscope	Sudro 103	Dr. Mathew 1-8214
Lyophilizer - Freeze Dryer	Sudro 9	Dr. Vetter 1-5281
Microplate Reader (PSCI students only)	Sudro 36	Drs. Leclerc/Vetter 1-5564
Ultracentrifuge	Sudro 36	Dr. Layek 1-7906
Zetasizer	Sudro 36	Shubhashri 1-8106
Flow Cytometer	Sudro 36	Dr. Mathew 1-8214
Incubator	Sudro 36	Dr. Venkatachalem 1-6371
Biosafety Cabinet	Sudro 36	
Water System	Sudro 9	Ashish 1-8106

Developer (Dark Room)

Make sure you reserve the developer thru the ndsu.pscireservation@ndsu.edu link. Directions on how to use the machine are on the wall. **When you are done processing, please leave the cover open and shut it off. Clean up after yourself; wipe or mop up all spills.**

Do not use half sheet films, doing this will jam the processor. If there are any issues or questions concerning the developer, please contact Saber in Dr. Guo's Lab – Sudro 11, 1-5169.

Maintenance is done every 3 to 4 months on the equipment. If you know that we are running low on supplies, please let one of the department office staff know and they will have RTI bring them when they come to service the machine.

Log Sheets

When using the common equipment, make sure you fill in the log sheet with your name, date, time used, etc. If the log books are full, please let one of the department office staff know so new sheets can be added.

Water System

Ashish is the contact person for the water system in Sudro 9. Please see him in Sudro 112 if there are any issues or questions. Please let one of the department office staff know as well if there are any issues.

Paper Towels (brown multi-fold) for individual labs

If your lab needs brown paper towels, please fill out an order sheet with funding and signature from supervisor, send the order form to ndsu.psciorders@ndsu.edu The cost is approximately $16/case.

Online Training (Faculty, Staff and Students)

Baseline Safety, Title IX and Supervisor Training (**must be done on a yearly basis**)

Waste Handling Refresher Training (**must be done every semester)**

New Students: (Graduate and Undergraduate students)

Students receiving a graduate assistantship are required to complete online trainings annually, (e.g., Baseline Safety, Title IX, Supervisor Training and in person Waste Handling Training) within 30 days of accepting their appointment. Failure to complete training can lead to sanctions, including revocation of the tuition waiver and termination of the assistantship.

New Faculty:

Baseline Safety, Title IX, Supervisor Training and in person Waste Handling Training must be completed within 30 days of accepting their appointment.

Current Faculty/Students:

Baseline Training, Title IX and Supervisor online training must be completed by August 31st every year.

Lab and Safety Course Modules

Online safety training for employees that work in laboratory spaces is contained in the following 7 modules. **Anyone who might generate hazardous waste will be required to attend Initial Waste Handling Training. The initial waste handling training for any new employee will be in-person. Refresher training will be required every semester thereafter and can be taken either online or in-person. A** number of sessions will be offered in order to meet this obligation. If you would like us to provide this in a departmental group setting, please contact the Safety Office at 1-7759 to arrange.

Principal investigators and those in charge of laboratory operations need to complete all seven modules whereas employees within the laboratory spaces need to complete just the first six. Once again, initial waste handling training for Module 2: Waste Handling is done in-person and online refresher is required each semester thereafter.

Module 1: Employee Right to Know https:/ /mood le.ndsu.edu/course/view.php?id=6 - This module contains information about general laboratory safety issues and how to identify hazards in the workspace.

Module 2: Waste Handling Online Refresher https://moodle.ndsu.edu/course/view.php?id=19 - This module contains information on proper waste handling and is required each semester for all employees that generate hazardous waste. **Summer 2021 now available.**

Module 3: Fire and Electrical Safety https://moodle.ndsu.edu/course/view.php?id=4 - This module contains information on fire and electrical hazards and gives the worker information that will help them respond to dangerous situations.

Module 4: Radiation Safety Topics «https://moodle.ndsu.edu/course/view.php?id=3 - This module contains basic radiation safety information and is designed to give a brief overview of this topic. Additional training requirements must be met if an employee will be actively working with radioactive material.

Module 5: Biohazard Topics https://moodle.ndsu.edu/course/view.php?id=13 - This module contains basic information on biohazards and biosafety awareness for those laboratories dealing with infectious substances. Additional training requirements must also be met for those employees who work with Bloodborne Pathogens or as part of a research team under approval of the Institutional Biosafety Committee. See the links elsewhere on this page for the Blood borne Pathogen Training and/or the CITI Biosafety Training.

Module 6: Nanotechnology «https://moodle.ndsu.edu/course/view.php?id=12> - This module contains basic information on nanoscale materials and the unique safety issues associated with working with and around these items. It forms a foundation that can be built upon through additional laboratory specific training.

Module 7: Principal Investigator/Supervisor <https://moodle.ndsu.edu/course/view.php?id=20> -This module is designed to familiarize the Principal Investigator or Laboratory Supervisor with additional requirements and responsibilities associated with their role.

Initial Waste Handling Training

In-Person training required by any employee who might generate hazardous waste or supervise someone generating hazardous waste.

When attending in person at the Memorial Union please bring a lap top with if you are able so you may complete the online quiz.

Wednesday, August 18, 2021 9am - 11am Sahnish Room, Memorial Union https://apps.ndsu.edu/event-registration/viewevent/Event: :47399> **Thursday, September 16, 2021 1 pm • 3pm Sahnish Room, Memorial Union** «https://apps.ndsu.edu/event-registration/viewevent/Event: :47569 **Tuesday, October 26, 2021 1pm - 3pm Sahnish Room, Memorial Union** https://apps.ndsu.edu/event-registration/viewevent/Event: :47570>

All employees who use hazardous chemicals in a laboratory, greenhouse, or field site must complete this initial in-person waste handling training. Online refresher training is required each semester an employee is working in lab thereafter. See Module 2: Waste Handling of lab and safety modules.

Please see **Chemical Hygiene Plan** <https: / /www.ndsu.edu/fileadmin/policesafety /docs/ chem_2009NDSUChemPlan. pdf> and).. **policy 166.1** «https://www.ndsu.edu/fileadmin/policy/166_1.pdf concerning institutional laboratory and chemical safety or contact the Safety Office (701) 231- 7759 tel:7012317759 if you have questions.

NDSU

North Dakota State University
Phone: (701) 231-8998 / Fax: (701) 231-6334
Campus address: University Police and Safety 102
Physical/delivery address: 1523 12th Ave N, Fargo, ND 58102°
Mailing address: NDSU Dept. 3300 / PO Box 6050 / Fargo, ND 58108-6050
Page manager: University Police and Safety Office"

Last Updated: Wednesday, August 04, 2021 8:25:36 AM

Computer and Printer Orders

All computer and printer orders can now be placed by individual faculty but you can't pay for it with your personal credit card or any other payment, see note below. HP and Mac computers are supported on campus. Specs can be found on the HP or Mac websites but all orders must be placed through the NDSU Bookstore or work with Janet to use the department credit card. Please fill out an order sheet with the funding that you want to use and turn it in to Janet.

Subject: Reminder on Computer Purchases

When purchasing computers, personal credit cards **cannot** be used. NDSU will **not** reimburse personal purchases for these NDSU resources. Instead, other methods should be used in order to avoid sales tax, increase internal controls and transparency. In addition, by purchasing through the IT department, support will be able to be provided by Desktop support. Options include:

Ordering through ITS
(https://www.ndsu.edu/its/help_desk/desktop_support_hub/hardware/preferred_hardware/)
Contact the NDSU Bookstore
Direct bill from vendor
Purchasing card

Reimbursement requests received will no longer be approved by Accounting. If you have any questions and concerns, please contact the Accounting office.

Thanks,
Travis Aho
Accounting Manager | Finance & Administration
NORTH DAKOTA STATE UNIVERSITY
P: 701.231.5661 | E: travis.aho.1@ndsu.edu
NDSU NORTH DAKOTA STATE UNIVERSITY

Software

Software needs approval before anything can be ordered or downloaded. An email needs to be sent to Melissa Eslinger (Melissa.Eslinger@ndsu.edu), CC Janet janet.krom@ndsu.edu and then Melissa will work with the university to get the software approved. Once approved, Melissa will send an email to the person requesting the software. Once you receive approval from Melissa, fill out an order form along with the approval from Melissa to the ndsu.psciorders@ndsu.edu.

Printing of Posters at Design & Sign Printing and Promotional Services

Poster printing services will be printed by Design and Sign, on the main level of the Memorial Union.

- Have your supervisor fill out an order sheet with the funding information.
- Fill out the top part (Your Project) on the Design & Sign order form located in the basket on the counter to the right as you come into the office. (See next page)
- Bring order sheet and order form to one of the department office staff and they will fill out the billing information and sign it. Dr. Singh can also sign it.
- Make a copy of the Design & Sign order form after it is signed (take the original to the Design & Sign Printing and Promotional Services Desk at the Memorial Union for processing)
- You will receive a Receipt/Invoice from Design & Sign, (see copy on next page)
- Please bring the receipt, order form & order sheet to the office. You can place it in the basket on the counter to the right as you come into the office.

DESIGN & SIGN
PRINTING AND PROMOTIONAL SERVICES

ORDER INFORMATION

for **INTER-DEPARTMENTAL BILLING**

we cannot begin your order until this is complete

701.231.7573 ndsu.designandsign@ndsu.edu ndsu.edu/mu/design_and_sign

CUSTOMER INFORMATION

Project Name:

*Customer Name:

*Contact Info (email or phone):

DEPARTMENT BILLING INFORMATION

*Department #:

*Fund #:

Project # (Optional):

Program # (Optional):

*Department Name **(no acronyms)**:

*Building Name and Room # (to send the IDB):

PROJECT DESCRIPTION

Tell us about your project - size, quantity, paper type, etc.

* **Required**
- Please allow a 24 hour turn around for printing orders and 2-4 days or more for projects that require design

DESIGN & SIGN

Receipt/Invoice

Project Id 20967
Project Name ATS poster
Department Pharmaceutical Sciences
Address
Contact
Date 05-18-2018

NDSU Design & Sign
Phone - (701) 231.7573
email - ndsu.designandsign@ndsu.edu
web - ndsu.edu/mu/design_and_sign

ID	Resource	PRICE	QTY	TOTAL
1210	Graphics Plot 42 Glossy (1 foot)	$9.00	4.6	$41.40
			GRAND TOTAL	$41.40

Payment Method: Charge
Department/AR#: 2665
Fund: 4600
Project: FAR0027001
Other1: n/a
Other2: n/a

Print Name: _____

Signature: _____ **Date:** ____/____/____

By signing, you are agreeing to payment as well as accepting the project AS-IS. Please be advised that we cannot guarantee color matching, mounting is not permanent, and moisture will damage prints. We will not be held responsible for errors in customer supplied materials or for mistakes in spelling, punctuation, sentence structure, or file errors as submitted or proofed by the customer.

For additional information, including details on ordering timelines and processes, costs, and expanded payment options, visit https://www.ndsu.edu/mu/design_and_sign/ . Please call 701.231.7573 if you have questions.

Travel Reimbursement Guidelines

Please send Order Form and Travel Expense Reimbursement Request form along with all your receipts, to the ndsu.psciorders@ndsu.edu link.

- ✓ Please include the following information when submitting travel receipts:
  - Were any meals included with the registration cost?
  - Registration printout with the prices of the different categories of registration fees.
  - Copy of the homepage of the conference you will be attending.
  - Copy of the Conference Agenda.
  - Provide the confirmation flight information receipt (not itinerary) from the Airlines or whichever service you use. (Orbitz, Expedia, etc.) This should include Ticket #, Departure/Arrival times, etc. (Credit card statements with these charges on them will NOT work)
- ✓ Hotel/Airfare and any other expenses made during a travel period must be purchased by **each individual person. Please do not charge other people's expenses on your credit card.**
- ✓ Loss damage waiver is not an allowable expense when renting a vehicle.
- ✓ Safe fees that hotels charge is not an allowable expense – **ask the hotel to remove the fees before they print out your itemized receipt**- if they will not remove the fees, whether you use the safe or not, you will not be reimbursed.
- ✓ Travel Authorization Form is needed two weeks prior to out of state travel and one month prior to foreign country travel.
- ✓ Faculty are to have department chair's approval
- ✓ Students are to have their supervisor's approval – they must also fill out the, "Travel Expense Reimbursement Request" and the "Payment for Student Travel" forms before attending any conferences.

https://www.ndsu.edu/fileadmin/vpfa/forms/ACCT-TravelExpenseCoverSheet.pdf

https://www.ndsu.edu/fileadmin/onestop/finaid/scholarships/PaymentforStudentTravel021417.pdf

Meal Reimbursement

You have the option of getting reimbursed for meals by PER DIEM or by handing in itemized receipts. (students need to ask their supervisor how they will be reimbursed before they leave concerning their meals.

Per Diem Reimbursements

- When handing in Per Diem reimbursement information thru the ndsu.psciorders@ndsu.edu email link, please include whether you are getting reimbursed for Breakfast, Lunch, Dinner or if any of these meals were included with the registration cost. (need a copy of the conference agenda)

- The State of ND only allows a certain amount for breakfast, lunch and dinner and the amount changes depending on your location. (Breakfast = $7.00 Lunch = $10.50 Dinner = $17.50)

Itemized Meal Reimbursements

- All meal receipts **must be itemized** and included with your reimbursement request thru the ndsu.psciorders@ndsu.edu email link, for reimbursement along with any other expenses that you want to be reimbursed for. Any expense without an itemized receipt will **NOT** be reimbursed. (Credit card statements with these charges on them will **NOT** work.

UBER/TAXI/Lyft

- Receipts must be the receipts from the drivers. (Credit card statements with these charges on them will **NOT** work. All tips must be included in the original receipts. There is a $5.00 maximum tip you can give someone. If you want to give them more, you must pay them in cash and not get reimbursed. Please write on these receipts where you were picked up and where you were dropped off. (Example: Airport to Hotel, Hotel to Conference Center, etc.) A map must also be included with each receipt.

Faculty Membership Dues Renewal

Information needed:

- Renewal notice from organization with your name on it
- Member ID#
- Name/Address of organization where the payment is to be sent
- Letter explaining why this membership will benefit you and NDSU

Other Information:

- **DO NOT** pay the fees yourself – it **MUST** go through the Accounting Department first and they will decide if the dues will be paid or not
- Membership fees must be paid out of your other funds – you can't use your grant money to pay for memberships
- You can only pay for a 1- year membership at a time
- **Please do not wait until December to renew your membership dues if they are due by January.**

Preliminary Defense Procedures

1. Check Graduate School website for preliminary defense requirements.
2. Check with department office staff on Dr. Singh's availability and room availability.
3. Check with committee members on their availability
4. After selecting a date and time, please confirm room reservation with the department office staff.
5. Preliminary defense must be sent to your committee members **two weeks prior** to presentation. If it is not, you will not be allowed to present and will have to reschedule.

Final Defense Procedures

1. Check Graduate School website for final defense requirements.
2. Check with department office staff on Dr. Singh's availability and room availability.
3. Check with committee members on their availability.
4. After selecting a date and time, please confirm room reservation with Janet.
5. Final defense must be sent to your committee members **two weeks prior** to presentation. If it is not, you will not be allowed to present and will have to reschedule.

Registering for PSCI 899

In the summer, department requirement, all graduate students must register for at least one (1) research credit in order to continue to receive their stipend.

Before Leaving NDSU

Please toss all unwanted papers, magazines, etc. Make sure lab and office space are cleaned up and samples disposed of properly. Place all lab coats in bin for laundering. Please return keys to department office staff, if your keys or lab coats are not turned in, your supervisor will be charged for any coats and keys that are not returned.

Billing Address:

North Dakota State University
Pharmaceutical Sciences
Sudro 136
PO Box 6050 - Dept 2665
Fargo, ND 58108-6050

Shipping Address for FedEx, UPS, DHL Deliveries:

North Dakota State University
Pharmaceutical Sciences
(Name of Recipient)
1401 Albrecht Blvd. N.
Sudro 123
Fargo, ND 58105

Mailing Address for Items sent via USPS (Post Office)

(Name of Recipient)
Pharmaceutical Sciences
Sudro 123
PO Box 6050 - Dept 2665
Fargo, ND 58108-6050

Common Expenses: these charts are from the Accounting Office so you know what you need to hand in when asking for a reimbursement.

Common Expenses:
To claim the expenses below, please provide the indicated documentation and/or receipt. Please refer to the noted policies for questions.

A **receipt** shows full information, including the itemized details of the purchase, the total cost, and the method of payment, and is **required for reimbursement** of a particular expense.

Documentation of airfare/lodging/related items is necessary to show proof of travel times, dates, etc. but *if reimbursement is not requested, it does not need to show proof of payment*

	Documentation of Business Purpose	Itemized Receipt	Itemized Airline Receipt	Itemized Hotel Receipt	Banquet Form and List of Attendees	Documentation of Air Travel	Documentation of Overnight Stay/Lodging	Documentation of Travel Time >4 Hours	Map of Travel Route	Fuel Receipts	Meeting or Training Agenda/Schedule	Conference Schedule	Student Travel Form (Student Employees) if applicable	Currency Conversion Documentation, if applicable	Travel Authorization (See NDSU Policy 515 section 3)	NDSU Policy 170: Payment of Meals for Staff & Guests	NDSU Policy 515: Travel - Employees	SBHE Policy & Procedure 606.1: Meals & Other Travel	OMB Policy/Policies	NDCC 44-08-04: Expense Account	NDCC 54-06-09: Mileage & Travel Expense
Business Purpose: Conference **See also: Travel (Last Page) unless virtual	**Documentation Required**														**Related Policies**						
Abstract Submission	X	X											X	X							
Conference Meals Purchased	X	X										X	X			X	X	X	505	X	
Conference Registration Fee	X	X											X							X	
Membership Dues (to reduce conf. fees)	X	X											X						209		
Business Purpose: Employee Non-Travel	**Documentation Required**														**Related Policies**						
Banquet Meal (At least one guest present)	X	X			X						X					X	X	X			
Membership Dues	X	X																	209		
Supplies/Postage/Books/Etc Purchased	X	X																			
Business Purpose: Group/Team Travel **See also: Travel (Last Page)	**Documentation Required**														**Related Policies**						
Banquet Meal	X	X			X											X	X	X			
Supplies Purchased	X	X																			
Business Purpose: Meeting **See also: Travel (Last Page)	**Documentation Required**														**Related Policies**						
Banquet Meal (At least one guest present)	X	X			X						X					X	X	X			
Staff meeting coffee/snack - not permitted	X	X			X						X					X		X	515		
Staff annual retreat meal (one per year)	X	X			X						X					X					
Supplies Purchased	X	X																			
Business Purpose: Monthly Expenses **See also: Travel (Last Page)	**Documentation Required**														**Related Policies**						
Supplies/Postage/Books/Etc Purchased	X	X																			

Common Expenses:
To claim the expenses below, please provide the indicated documentation and/or receipt. Please refer to the noted policies for questions.

A **receipt** shows full information, including the itemized details of the purchase, the total cost, and the method of payment, and is **required for reimbursement** of a particular expense.

Documentation of airfare/lodging/related items is necessary to show proof of travel times, dates, etc. but *if reimbursement is not requested, it does not need to show proof of payment.*

	Documentation of Business Purpose	Itemized Receipt	Itemized Airline Receipt	Itemized Hotel Receipt	Banquet Form and List of Attendees	Documentation of Air Travel	Documentation of Overnight Stay/Lodging	Documentation of Travel Time >4 Hours	Map of Travel Route	Fuel Receipts	Meeting or Training Agenda/Schedule	Conference Schedule	Student Travel Form (Student Employees) if applicable	Currency Conversion Documentation, if applicable	Travel Authorization (See NDSU Policy 515 section 3)	NDSU Policy 170: Payment of Meals (for Staff & Guests	NDSU Policy 515: Travel - Employees	SBHE Policy & Procedure 806.1: Meals & Other Travel	OMB Policy/Policies	NDCC 44-08-04: Expense Account	NDCC 54-06-09: Mileage & Travel Expense
Business Purpose: Off Site Work (Non Research) **See also: Travel (last Page)	**Documentation Required**														**Related Policies**						
Banquet Meal (At least one guest present)	X	X			X										X	X	X				
Supplies/Postage/Books/Etc Purchased	X	X																			
Business Purpose: Off Site Work (Research) **See also: Travel (last Page)	**Documentation Required**														**Related Policies**						
Banquet Meal (At least one guest present)	X	X			X										X	X	X				
Supplies/Postage/Books/Etc Purchased	X	X																			
Business Purpose: Professional Development	**Documentation Required**														**Related Policies**						
Class Fees	X	X														X				X	
Membership Dues	X	X											X						209		
Purchased Books/Supplies/Etc.	X	X																			
Business Purpose: Recruiting **See also: Travel (last Page)	**Documentation Required**														**Related Policies**						
Banquet Meal (At least one guest present)	X	X			X										X	X	X				
Event Fees	X	X														X				X	
Supplies Purchased	X	X																			
Business Purpose: Training **See also: Travel (last Page)	**Documentation Required**														**Related Policies**						
Banquet Meal (At least one guest present)	X	X			X						X				X	X	X				
Registration Fees	X	X														X				X	
Suppliers/Books/Postage Purchased	X	X																			

Common Expenses:
To claim the expenses below, please provide the indicated documentation and/or receipt. Please refer to the noted policies for questions.

A **receipt** shows full information, including the itemized details of the purchase, the total cost, and the method of payment, and is **required for reimbursement** of a particular expense.

Documentation of airfare/lodging/related items is necessary to show proof of travel times, dates, etc. but *if reimbursement is not requested, it does not need to show proof of payment.*

	Documentation of Business Purpose	Itemized Receipt	Itemized Airline Receipt	Itemized Hotel Receipt	Banquet Form and List of Attendees	Documentation of Air Travel	Documentation of Overnight Stay/Lodging	Documentation of Travel Time > 4 Hours	Map of Travel Route	Fuel Receipts	Meeting or Training Agenda/Schedule	Conference Schedule	Student Travel Form (Student Employees) if applicable	Currency Conversion Documentation, if applicable	Travel Authorization (See NDSU Policy 515 section 3)	NDSU Policy 170: Payment of Meals for Staff & Guests	NDSU Policy 515: Travel - Employees	SBHE Policy & Procedure 806.1: Meals & Other Travel	OMB Policy/Policies	NDCC 44-08-04: Expense Account	NDCC 54-06-09: Mileage & Travel Expense
In-State Travel	**Documentation Required**														**Related Policies**						
Lodging ($86.40 state rate)	X			X								X				X	X	505	X		
Hotel Parking	X	X		X								X				X		505			
Meals (Nontaxable) In-State (Overnight)	X						X								X	X	X	505	X		
Meals (Taxable) In-State	X							X							X	X	X	217	X		
Mileage (Pers. Vehicle) In City of Employment	X								X								X	507	X	X		
Mileage (Personal Vehicle) In-State	X								X								X	511	X	X		
Misc < $10: Cabs/Fees/Tolls/Parking, Etc	X														X			505	X		
Parking > $10	X	X										X					X	505			
Out-of-State Travel	**Documentation Required**														**Related Policies**						
Airfare Out of State	X	X	X									X		X			X	510			
Airport Parking	X	X				X						X		X			X	505			
Luggage Expense	X	X				X						X		X				510			
Cab/Uber/Lyft over $10 (Max $5 tip)	X	X										X		X			X	505			
Lodging	X			X								X		X			X	505	X		
Hotel Parking	X	X		X								X		X			X	505			
Meals (Nontaxable) Out-of-State	X						X					X		X	X	X	X	505	X		
Meals (Taxable) Out-of-State	X							X				X		X	X	X	X	217	X		
Mileage (Personal Vehicle) Out-of-State	X								X			X		X			X	511	X	X	
Misc < $10: Cabs/Fees/Tolls/Parking, Etc	X											X		X	X			505	X		
Parking > $10	X	X										X		X			X	505			
Rental Car (w/demonstrated cost benefit)	X	X				X				X		X		X			X	518			
International Travel	**Documentation Required**														**Related Policies**						
Airfare International	X	X	X										X	X	X		X	X	510			
Airport Parking	X	X				X							X		X		X	505			
Luggage Expense	X	X				X							X	X	X			X	510		
Cab/Uber/Lyft over $10 (Max $5 tip)	X	X											X	X	X		X	505			
Lodging	X			X									X	X	X		X	X	505	X	
Hotel Parking	X	X		X									X	X	X		X	505			
Meals International	X						X						X	X	X	X	X	X	505	X	
Mileage International (Personal Vehicle)	X								X				X	X	X		X	X	511	X	X
Misc < $10: Cabs/Fees/Tolls/Parking, Etc	X												X	X	X	X			505	X	
Parking > $10	X	X											X	X	X		X		505		
Rental Car (w/demonstrated cost benefit)	X	X				X				X			X	X	X		X		518		

Guide to Reimbursable Expenses

This is a quick reference guide for North Dakota State University employees. It is not intended to replace the travel policies of North Dakota State University or the laws of the State of North Dakota. This guide contains examples of reimbursable and non-reimbursable expenses, but there are many different travel situations, and the department may still be asked to provide additional documentation or cost/benefit justification for any claimed expense.

General Travel Reminders:

Employees must choose the most prudent and economical means of travel, considering factors such as travel expenses, time away from the office, and the needs of the University. Employees may be asked to provide additional documentation or a cost/benefit justification to support a certain means of travel. Travelers need to exercise prudent judgment, common sense, and restraint when incurring travel costs, as these expenses must withstand the test of public scrutiny.

NDSU policy requires that employees have each out-of-state trip pre-approved by their immediate supervisor. In addition, the appropriate Vice President or Provost, or their designee must approve each trip to a foreign country.

When personal and business travel is combined, expenses must be clearly documented and reimbursement for airfare may not exceed the lowest available cost of a direct or uninterrupted route. If the traveler uses an indirect route or interrupts travel for personal convenience, any additional expenses incurred are the sole responsibility of the traveler.

Air Travel

What to Provide:
Full receipt showing payment method, flight dates and times, and a breakdown of fares, fees, taxes and extra amounts Documentation of business purpose

What is reimbursable: The lowest priced main cabin fare (plus required fees and taxes) available at the time of purchase – higher fares require documentation that the additional expense was necessary or unavoidable

Fees for one checked bag and one carry-on bag, if required.

The lowest cost option of: EITHER Uber/Lyft transportation to and from the airport, OR airport parking, for travel beginning one day prior to the event and ending one day after the event.

What is NOT reimbursable:
Use of discounts/coupons/frequent flyer miles – only the amount paid can be reimbursed

Mixed fee "bundles" such as Allegiant's "Total Bundle" (UNLESS the bundle is cheaper than purchasing the allowed items separately – occasionally a bundle is demonstrably cheaper than purchasing round-trip carry-on and checked luggage)

Seat selection fees or fare upgrades to business or first-class seating (may use earned frequent flyer miles for this expense)

Priority boarding

Additional baggage fees, unless a documented business need for additional baggage exists

Airport parking for personal travel days surrounding a business trip

Trip insurance or additional fees for refundable tickets

Taxi/Uber/Lyft

What to Provide:
Full itemized Uber/Lyft receipt including dates and times, trip origin and destination addresses, as well as all taxes, fees and tips, and method of payment. Daily email summaries of travel do not always provide sufficient information.

Documentation of purpose of travel

What is reimbursable:
Transportation between the airport and conference center or hotel

Transportation to/from business meetings that happen away from the lodging/conference center

Daily transportation between the lodging and conference center with documentation that this arrangement is a cost savings over staying at the conference hotel

Tips up to $5 for any approved trips

What is NOT reimbursable:
Transportation to/from meals, shopping, or entertainment visits

Tip amounts over $5 Uber Cash or similar payment options

Personal Vehicle Transportation

What to Provide:
Business purpose, including origin and destination locations – a map from Google Maps or similar source should be provided to verify the distance traveled, in most cases

For field work or rural site visits, please provide total miles traveled and description, such as: "Traveled 129 miles visiting 3 fields in Cass and Trail Counties"

What is reimbursable:
Mileage directly from the office to the meeting location or hotel

Mileage traveled while performing a series of site visits

Parking expenses at meeting locations, hotels, etc.

What is NOT reimbursable:
Fuel, parking tickets, vehicle maintenance and repairs

Mileage from home to work location

In-town driving in the destination community, unless business-related – any additional local trips must have details included, such as "drove from conference location to purchase supplies for presentation" or similar descriptions

Mileage that exceeds the map distance cannot be reimbursed without additional documentation

Hotel/Lodging

What to Provide:
Full itemized receipt showing dates of stay, room rate(s), taxes, fees, and method of payment, including proof of payment for any advance deposits

Documentation of business purpose is required for all lodging expenses

What is reimbursable:
Actual cost of lodging (for a single person) for out-of-state, or 90% of the GSA lodging rate for in-state, plus applicable taxes

Lodging for one day of travel before and one day of travel after a conference or event

Resort fees that are required

What is NOT reimbursable:
Alcohol, minibar, and entertainment expenses

Late check-out charges

Laundry

Meals charged to the room (per diem should be claimed for the meal)

In-state lodging that exceeds 90% of the GSA rate (unless documentation process in policy 515, part 7.1 is followed)

Conference Fees or Membership Fees

What to Provide:
Receipt showing purchase detail including name of conference or membership, full amount paid, and method of payment – include documentation of any cost savings resulting from the membership purchase

Schedule printout (not just a website link) showing the daily schedule, location, and any meals provided. Sample schedules are permitted if the main schedule is only available online.

What is reimbursable:
Membership fees for job-related organizations or that give reduced conference pricing, or show a demonstrable cost savings for a business-related purpose

Conference fees, including business-related ticketed meals (please note that per diem cannot be claimed for the quarter if a meal is provided at the conference)

Conference meal packages if the price of the package will provide a cost savings over the price of the per diem allowance for the conference dates and if it is evident that alcohol is not included

Necessary business travel to attend an in-person or hybrid conference

What is NOT reimbursable:
Entertainment related costs, including outings, meals, programs, parties or entertainment events

Alcohol-related costs, including drink tickets

Travel expenses related to a virtual conference with no in-person attendance option

Banquet Meals

What to Provide:
Banquet form showing business purpose, name of each attendee, and their title/relationship to NDSU

Fully itemized receipt from the restaurant/caterer showing what was purchased/served and the price per item

What is reimbursable:
Meals provided for a business function where a university guest is present

Meals provided for an annual staff retreat (limited to one per department per year)

Meal amounts up to (but not exceeding) 125% of the GSA rate for that meal period at that location

Gratuity up to 20% - provided the full price of the meal including gratuity is still under the 125% rule

What is NOT reimbursable:
Alcoholic beverages

Meals provided where the only attendees are NDSU employees and the meal is not for an annual staff retreat S

Snacks/drinks for staff or faculty meetings

*Any meal where the cost exceeds 125% of the GSA rate must be submitted to the Foundation for request for reimbursement for the full amount.

Per Diem Meals

What to Provide:
Travel details: begin time, end time, destination and business purpose

For overnight travel: proof of overnight lodging (lodging receipt or notation that the individual stayed with a friend/family member)

What is reimbursable:
Meals while traveling (away from the normal place of employment) for four hours or more

Out-of-state: all meals are reimbursable at the GSA rate in the city of the final destination

What is NOT reimbursable:
Any quarter per diem when that quarter's meal is provided at a meeting, training, conference, etc.

Any quarter per diem when the employee meal is reimbursed at actual receipt amount – for example, when an employee's meal is paid on a transaction that is included with a banquet form

First quarter per diem (6am-noon) if travel begins after 7am, or if the hotel/motel provides free breakfast

Second quarter per diem (noon-6pm) if travel ends prior to noon or begins after 1pm

Third quarter per diem (6pm-midnight) if travel ends prior to 6pm or begins after 7pm

Rental Vehicles

What to Provide:
Rental receipt from National/Enterprise/Hertz, business purpose, and documentation of the cost savings or necessity of renting the vehicle

If National/Enterprise/Hertz are not available, or if there is a cost-savings available, other rental agencies can be used – please provide the documentation of the reason for the alternate rental agency

What is reimbursable:
Cost of rental car, if the employee used an aircraft to get to their destination, and if the use of the vehicle is sufficient to justify that mode of travel instead of a cab

Required collision damage insurance, if no rental cars are available via the state contract – for more information please visit https://www.ndsu.edu/fileadmin/vpfa/forms/FM-RentalVehicleInformation.pdf

What is NOT reimbursable:
Purchase of additional insurance beyond the contracted insurance amounts

Miscellaneous Expenses

What to Provide:
Receipt for any miscellaneous expense over $10

Business purpose for each miscellaneous expense

What is reimbursable:
Reasonable gratuity (up to $5) provided to housekeeping, bellhop or other hotel staff

Toll fees

Class or registration fees

Business telephone calls (documentation of additional expense required)

What is NOT reimbursable:
Gratuity on a meal covered by the per diem allowance

Phone calls or personal cell phone use that do not cause additional expenses

Use of a personal data plan to provide a "hotspot" for remote work

Any expense without a valid business purpose