Mandatory Laboratory Animal Coordinator (LAC) Lecture
Laboratory Animal Coordinators… Superheroes in Disguise?

Your PI needs you!

- Coordinate animal activities in lab
- Ensure everyone is properly trained
- Maintain compliance with animal welfare rules and regulations
Laboratory Animal Coordinators… Superheroes in Disguise?

The IACUC needs you!

- Ensure lab members work within the guidelines of the lab’s protocols
- Ensure all necessary documentation is kept updated
- Act as a liaison between the lab and the IACUC
In Other Words......
Lecture/Wet Lab Requirements:

• LAC Lecture
• Mouse Handling and Techniques
• Rat Handling and Techniques
• Aseptic Techniques

To register, visit the [UNC Event Registration System](#)
LAC Proficiency Assessment

• I:  Allowed to train and certify laboratory personnel immediately

• II:  More experience required before able to train laboratory personnel

• III:  Significantly more experience required before the level of proficiency required of a LAC attained
Certifying Lab Personnel

LAC may not train/certify in the following techniques:

• Retro-Orbital Bleed
• Retro-Orbital Injection
• Cervical Dislocation without Anesthesia
• Decapitation without Anesthesia
Certifying Lab Personnel

Training: Other Vertebrates and Isoflurane Vaporizer

• DCM Veterinary Services provides one-on-one training for species (once animals are in-house) and Isoflurane vaporizer training

• Contact the Veterinary Technician Supervisor at 843-3407
Mouse Breeding

• Mandatory Mouse Cage Density Policy Lecture
• Mouse Action Required Card
• Voluntary Mouse Colony Management Lecture
Rat Breeding

• No Lecture required
• Must follow UNC Rat Cage Density Policy (HERE)
• Rat Action Required Card
If you should leave the lab...

• Inform the IACUC of the change

• Add the new LAC to the protocol *BEFORE* the old LAC leaves

• The new LAC **must** have completed:
  • LAC lecture (required)
  • Rodent training (if applicable)
Required Online Orientations

- Animal Handler Profile – updated annually
- DCM- every three years (only if animals are housed in DCM facilities)
- IACUC– completed only once
- Research Profile
- Lab Worker Registration
# Required Online Orientations

<table>
<thead>
<tr>
<th>Project Title:</th>
<th>Techniques in the Laboratory Mouse - IACUC Hands-On Training</th>
</tr>
</thead>
<tbody>
<tr>
<td>Species:</td>
<td>Mouse</td>
</tr>
<tr>
<td>IACUC ID:</td>
<td>16-230.0</td>
</tr>
<tr>
<td>Pt:</td>
<td>Emily Weston Hearne</td>
</tr>
</tbody>
</table>

### Personnel

<table>
<thead>
<tr>
<th>Name</th>
<th>Research Profile</th>
<th>Lab Worker Form</th>
<th>Animal Handler</th>
<th>IACUC Orientation</th>
<th>DCM Orientation</th>
<th>Training</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rebecca Ann Dye</td>
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<tr>
<td>Colleen M Fritsche</td>
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<tr>
<td>Taylor K Gentle</td>
<td>☑</td>
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<td>☑</td>
</tr>
<tr>
<td>Emily Weston Hearne</td>
<td>(LAC)</td>
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<tr>
<td>Tracy M Heenan</td>
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<tr>
<td>Darin J Knapp</td>
<td>☑</td>
<td>☑</td>
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<td>☑</td>
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<tr>
<td>Candace Morales</td>
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<tr>
<td>Sheme Quillen</td>
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</tbody>
</table>
Remember…

- Protocol approval is contingent on completion of orientation and training for all personnel on the application.

- An amendment to add new personnel must be submitted by the PI and approved by the OACU before animal work or DCM access is allowed.
ACAP Application Items to Address

• List all personnel involved with the project on the protocol

• Ensure all roles and techniques employed in an application are listed in personnel role(s) and technique(s) profile(s) in section 1.0

• If breeding, address culling of excess pups and adults, method of euthanasia, and list Cage Density Policy lecture as a technique in the appropriate section of the animal use application
Grant Congruency

- Side-by-side grant/IACUC application comparison

- Federally Regulated

- All animal procedures described in a grant must be included on IACUC application and approved prior to funding

- Once a favorable NIH grant score has been obtained, request a Grant Congruency Review online
Grant Congruency

• All DOD and NIH grants are being reviewed by the IACUC Grants Manager

• Grant Congruency Informational Handout: http://research.unc.edu/files/2012/11/CCM3_035269.pdf

• Grant Congruency Procedures: http://research.unc.edu/files/2012/11/CCM3_035267.pdf

• Please contact the Office of Animal Care and Use at 966-5569 for additional questions
IACUC Inspections

• Semiannual Investigator Laboratories
• Semiannual Animal Facilities
• Informational Inspections (every two years)
• Unannounced Mouse Breeding Checks
• Facility Spot Checks
# IACUC Semi-annual and Satellite Inspection Checklist

**IACUC Laboratory/Satellite Inspection Report [A, M, L, NA]**

**Date:** Inspection:

### I. BRIEF SUMMARY OF WORK CONDUCTED IN THE LABORATORY

#### 2. DOCUMENTATION and POSTING:
- Emergency, weekend, and holiday contact information visibly posted in animal housing area
- Current copy of Reporting an Animal Concern, OOS Euthanasia Policy and Emergency Telephone Numbers posted
- Approval form signed and implemented in laboratory
- Any changes to safety procedures or materials implemented and approved by institutional committee
- All personnel handling animals in the lab trained, certified, and on completion
- Approved protocols and amendments available to and reviewed by laboratory personnel conducting animal research

### 3. HEALTH and SAFETY

<table>
<thead>
<tr>
<th>Task</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blood pressure monitoring</td>
<td>Monitoring blood pressure in animals to ensure appropriate levels.</td>
</tr>
<tr>
<td>Laboratory hygiene practices</td>
<td>Maintaining sterile conditions in the laboratory environment.</td>
</tr>
<tr>
<td>Occupational health and safety practices</td>
<td>Ensuring the safety and health of laboratory personnel.</td>
</tr>
</tbody>
</table>

### 4. ANIMAL CARE

<table>
<thead>
<tr>
<th>Task</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Report animal health access to Division of Laboratory Animal Medicine</td>
<td>Providing access to animal health records for the Division of Laboratory Animal Medicine.</td>
</tr>
<tr>
<td>Clinical records for individual animals (corrected annually)</td>
<td>Maintaining accurate and up-to-date clinical records for individual animals.</td>
</tr>
<tr>
<td>Analysis/Anesthesia use as described in approved ACAP</td>
<td>Implementing approved ACAP protocols for anesthesia use.</td>
</tr>
<tr>
<td>Procedures for animal welfare (corrected annually)</td>
<td>Ensuring the provision of proper care and welfare for animals.</td>
</tr>
<tr>
<td>Monitoring of animal behavior (corrected annually)</td>
<td>Monitoring animal behavior to ensure appropriate standards.</td>
</tr>
</tbody>
</table>

### 5. AGENTS ADMINISTERED

<table>
<thead>
<tr>
<th>Task</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Procedures for ensuring drugs are administered correctly (corrected annually)</td>
<td>Ensuring the proper administration of drugs to animals.</td>
</tr>
<tr>
<td>Monitoring for veterinary use (corrected annually)</td>
<td>Monitoring for veterinary use to ensure proper administration.</td>
</tr>
</tbody>
</table>

### 6. PHYSICAL PLANT

<table>
<thead>
<tr>
<th>Task</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inspection services</td>
<td>Performing routine inspection services to ensure proper condition.</td>
</tr>
<tr>
<td>Equipment maintenance (corrected annually)</td>
<td>Ensuring the maintenance of equipment is up-to-date.</td>
</tr>
</tbody>
</table>

### 7. SURGICAL PROCEDURES

<table>
<thead>
<tr>
<th>Task</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surgery procedures</td>
<td>Implementing proper surgical procedures to ensure animal welfare.</td>
</tr>
<tr>
<td>Monitoring equipment</td>
<td>Ensuring the proper condition and maintenance of equipment in use.</td>
</tr>
</tbody>
</table>

### General Considerations

- Location minimizes traffic/contamination (survival surgery)
- Procedure performed in aseptic (or IACUC approved surgical field)
- Post-op recovery is designed and was conducted (physically or otherwise) as agreed
- IACUC laboratory is smooth and impervious to ensure positive control
- All equipment is certified

### Anesthesia

- Adequate records of anesthesia and post-operative care
- Proper monitoring for depth of surgical anesthesia
- Protocols for administering and monitoring anesthetics (survival surgery)
- Proper anesthesia, dosing, and recovery (as recorded)

### Aesthetic Techniques for Survival Procedures

- Rodent survival surgery clean and unobtrusive, not used for anything else during the surgical procedure
- Use of effective analgesic procedures for survival surgery
- Anesthesia administered in accordance with approved ACAP
- Adequate technique in using analgesic agents
- Adequate documentation

### Satellite Facilities

- Day-to-day operations of satellite facilities
- Animal identification system (including accurate animal tracking)
- Sanitation and maintenance
- Monitoring equipment
- Patient care
- Veterinary care

### Aquatic Facilities

- Chlorine/water treatment systems removed or neutralized, water quality testing
- Temperature/humidity values maintained
- Temperature/humidity values recorded
- Water parameters monitored
- Tank levels maintained
- Tank cleanliness observed
- Fertilizer maintained
- Water quality tested
- Temperature/humidity maintained
- Tank size in proportion to number of animals
- Water quality maintained
- Water temperature maintained
Documentation on Anesthetics

• Controlled substance log available online. Documentation requirements covered during rat and mouse handling classes.

• **All** anesthetics, analgesics, and euthanasia agents **must** be documented **every time** they are used.

[Images of Isoflurane Vaporizer Log and Isoflurane Drop Method Log]

[Links]
Procedural Observation

Procedural required if lab performs any of the following:

- studies involving surgery (survival / non-survival)
- behavioral studies involving aversive conditioning
- studies involving animals in pain category E
Procedural Observation

• Scheduled as part of semiannual or informational inspection when possible

• Conducted every three years or if the person who was originally observed leaves the laboratory within the three year period

• Does not need to occur before initiating the procedure in the lab
Euthanasia (Inhalational or Injectable Anesthetic)

- Euthanasia method should be described in the approved protocol and section 6.0.8 completed.

- Every animal of any age euthanized under the effect of any anesthetic (inhalational or injectable) must be confirmed dead before the carcass is placed in the cooler.
Euthanasia
(Inhalational or Injectable Anesthetic)

Some of the approved methods to confirm death are:

- cervical dislocation
- decapitation
- thoracotomy
- organ harvest

(*Note- Neonatal rodents are resistant to hypoxia and can take a much longer time to succumb to compressed CO2 gas*)
Euthanasia (continued)

• Euthanasia of rodents may take place in rodent housing rooms containing individually ventilated caging (IVC) and/or a fume hood that exhausts to the outside

*Note: In extenuating circumstances and with permission from DCM Veterinary or IACUC staff members, an acceptable euthanasia method not described in the approved protocol may be performed in the animal housing rooms.*
If animals are to be euthanized by DCM, the cage(s) must be identified by a euthanasia card and a euthanasia form must be completed.
Proper Disposal

- Ensure the research staff place animal carcasses in non-PVC containing, sealed, see-through plastic bags labeled with application identification number only.

- Bags are provided in a variety of sizes by DCM.

- Deposit carcasses in facility animal freezers.

- DCM now incinerates all animal carcasses. Complete the incineration form posted on the outside of the animal freezer when disposing of carcasses.
Carcasses & Cages

All carcasses and experimental materials must be removed from cages prior to drop off in dirty cage area
Items Required in Laboratory

• Access to all current approved animal use applications including amendments

• PI animal health records and/or monitoring logs

• Drug logs – analgesia, anesthesia and euthanasia

• Laboratory safety plan and SDS sheets

• Hazard signs
Lab Postings

• How to report animal mistreatment or animal use application noncompliance (HERE)

• Posting of emergency telephone numbers

• Needle safety

• CO$_2$ Euthanasia (if applicable)
DCM Cards
DCM Cards

- Green Health Check and Red Vet Care cards are the official health record.
Cage Side Identification of Chemical Hazards

Ensures the safety of research and DCM personnel when handling bedding, cages etc. (chemicals that could be harmful to DCM staff)
Cage Side Identification of Chemical Hazards

• Part of the mandatory DCM facility orientation

• The cards must match the Chemical Hazard Form on the rack

• Check for chemical name, dates, and protocol numbers to make sure they match!

• Training document available HERE
Got Chemical Hazards?

Do I need to mark my cages?

1. ACAP - Open Protocol(s)
2. Look for Hazard Forms
3. Check answer to question #4:
   Example:

4. Animal Housing Requirements
   a. Is isolation cubicle space needed for animals treated with chemical agent? No
   Carcinogen use and Cytotoxic/Antineoplastic use requires: The PI to discuss the use of these agents with DLAM Facility Manager. During treatment of animals, it is the PI's responsibility to identify cages with yellow "chemical hazard" cards and post the Chemical Hazard form on door of room or isolation cubicles. For more information see the DLAM “Handling Cages Dosed with Chemical Hazards” Standard Operating Procedure (SOP).
   b. Other specific requirements:
Chemical Hazard Form

- The LAB is responsible for maintaining the Chemical Hazard form on the rack and the Chemical Hazard cards on the cages!

- Make sure they match!

- Check for expired protocols, old contact info, any any other updates.
Biohazard Cards AND Form

• All treated cubicle cages must have the cards with the agents written on them

• If you work in BSL2/cubicle, ask researchers when they are infecting the animals, once infected they MUST have the card!
Biohazard signage continued...

• Card on/off = PI duty

• Form on cubicle door = DCM Vet duty
  ◦ Check expiration dates and protocol numbers
  ◦ Remove old ones (give to manager)

DCM employees MUST know the hazards a cage has been exposed to in order to ensure personnel safety.
Monitoring and Documentation

• **Investigator Health Monitoring card** - for documenting an animal’s health status after an experimental manipulation (i.e. surgery, injection, etc.).

• **Pink post-operative card** - for documenting post-operative monitoring and analgesia. *Required.*
Monitoring and Documentation

- **Design a monitoring log** that meets the specific needs for your experiment(s)

- **Abide by the monitoring schedule** described in the approved animal care application and ensure adequate documentation of the monitoring

- **If animals are to be monitored by lab staff** place a **monitoring log** on the back of the room door. This will alert DCM staff that the required observations are occurring
Policies

• If investigator’s staff is responsible for feeding, watering or cage changes, the investigator must maintain an up-to-date ‘Check Sheet for Duties Performed By Investigator’ log within the animal room.

• Ensure the information requested in the upper right hand corner is supplied.
If the approved animal care application indicates that the investigator will monitor health, weight, or other parameters, documentation logs should be readily available to IACUC.
Food and Water Restriction

*PI Food and/or Water Restriction
PI __________________ Protocol # __________
Cage Card #: __________________
Date Duties Begin __________
Date Duties End __________
Food Restriction? ☐
Water Restriction? ☐
☐ Time limited or ☐ Quantity limited
☐ Check here if OK to feed/water ad libitum on weekends or holidays

*A PI Duties Check Sheet must also be completed and maintained in the housing room!
“E”xceptions

• “Exceptions” are deviations from approved IACUC or federal policy. Must be filed by PI and approved by IACUC before implementation.

• Cage cards of all animals covered by exceptions must be marked with a red letter “E” in the upper right corner. [Reverse-light cycle rooms require the “E” to be in black ink]

• Investigator personnel are responsible for maintaining an up to date copy of the “Exception” in the DCM metal box located outside of each animal housing room.
Acclimation Period

- DCM Veterinarians strongly recommend that animals are given 48-72 hour acclimation period upon arrival.
- Click here for the UNC Acclimation Period Guideline
Self Reports

Report to the Office of Animal Care and Use (OACU) & Veterinary Services *any* unanticipated study outcomes which result in the harm or death of experimental animals
Amendments

• Any changes to the approved protocol must be reviewed and approved by the IACUC prior to implementation!

• Amendment Guidelines available on the IACUC website. Click HERE
Security Issues

• Biosecurity – facility/room access

• All personnel entering facilities must have valid UNC issued picture identification

• New personnel should contact the DCM building supervisor for a facility orientation.

• Please remember – Do not share building access cards or keys!! Do not let unauthorized personnel into facilities.

• Make sure that all lab members are aware of any security alerts.

• Report any problems or suspicious activities to Campus Police immediately.
Emergency Contact

• Establish a 24-hour contact name and phone number (cell or beeper) that DCM can contact at any time to ask animal health-related questions.

• Do not use the lab phone number as the emergency contact number.
Emergency Contact

- A name and number must be posted within every animal room

- Update contact information when necessary

- Forms provided by DCM
Animal Transport

- Animal transport between facilities is regulated by DCM. The SOP is available on the IACUC website.

- All cages, animals and carcasses must be covered during transportation to or from a facility.
Animal Procedural Space Exception (APSE)

• Investigator maintained facility in which animals will be maintained and tested for limited periods greater than 12 hours for USDA-regulated species and 24 hours for non-USDA regulated species

• The IACUC will consider on a case by case basis

• IACUC approved APSE guidelines are available for review here
Satellite Facilities

• A Satellite Animal Facility is a non-Division of Comparative Medicine (DCM) animal facility in which animals are housed on a long-term basis and are cared for by the principal investigator's laboratory personnel.

• IACUC approved Satellite Facility guidelines are available for review on the IACUC website.
Satellite Approval

• Rigorous approval process

• Daily animal care and observation required

• Contact DCM veterinary personnel to report any animal health concerns

• Quarterly IACUC inspection

• On-line animal census documentation
EHS-Safety Eye washes

• Labs are responsible for ensuring that emergency eyewash facilities, in the laboratory space and nearby common areas, remain operational and accessible.

• Check the system at least once a month. A quick (~5 second) activation of the eyewash verifies water pressure, and flushes rust, scale, and other debris out of the system.
EHS-Safety Eye washes

• Verify monthly eyewash checks by filling out inspection tags located on or near the units.

• Inspection tags can be ordered from Fisher (Part No. NC9787676) or you can keep track on a piece of paper near eyewash.
EHS-Secondary Containment

Secondary containment is used to prevent the spread of chemical spills, including spills involving chemical wastes.

Required:
- When moving chemicals through or between buildings.
- For all glass containers of liquid chemical hazardous materials (including waste) stored on the floor.
- For all containers of liquid chemical hazardous waste, with capacity of 4 liters or less, regardless of storage location.
EHS-Secondary Containment

Recommended Types:

- Plastic trays
- Plastic tubs
- Bottle Jockeys
- Plastic buckets
PPE for Animal Work in Labs

PPE required is based on risk assessment of procedures being done in lab space.
PPE for Animal Work in Labs

Minimum lab PPE required:
• Safety glasses/goggles
• Gloves
• Lab coats
PPE for Animal Work in Labs

Additional PPE based on risk assessment of animal work:
• Puncture resistant gloves
• Surgical masks
• Respiratory protection
• Sleeve covers
• Face shields
Sharps

Sharps include:

• Syringes (with/without needles)

• Razor blades

• Scalpels

• Lancets

• Slide covers
Sharps Disposal

**Biohazard:**

- Collect directly into red Sharps containers marked with Biohazard symbol
- Remove containers for disposal when 2/3 full
- Place “x” with autoclave tape on container, place in red bag and autoclave
- After autoclaving dispose in regular trash
Sharps Disposal

**Chemical:**

- Collect directly into white plastic Sharps containers marked with “Chemically Contaminated Sharps”

- Remove containers for disposal when 2/3 full

- Submit online EHS waste pickup form
**Sharps Disposal**

**Non-hazardous:**

- Collect directly into white plastic Sharps containers marked as “Non-hazardous Sharps”

- Remove containers for disposal when 2/3 full

- Dispose in regular trash
Sink Disposal of Chemicals

Do not use the sanitary sewer for the disposal of hazardous materials, with the exception of trace quantities associated with cleaning and washing operations, e.g., glassware.
Sink Disposal of Chemicals

• Under no circumstances should halogenated or non-halogenated solvents be sewered directly or in aqueous solution when the solvent concentrations are more than trace (e.g. >1% by volume)

• Only neutral salts and buffers may be disposed of down the drain
Sink Disposal of Chemicals

Do not dispose any of the following down the drain:

• Acids with a pH < 6.0 s.u.
• Bases with a pH > 10 s.u.
• Solvents
• Alcohols, ethers, esters, ketones, aldehydes, amines, amides, nitriles, ethidium bromide, carbon disulfide, phenol or phenolic materials, other halogenated or non-halogenated hydrocarbons, or other chemical agents unless present as trace constituents in aqueous solution
• Sodium Azide containing wastes
• Formaldehyde containing wastes
• Solutions with heavy metals
Network of Laboratory Animal Coordinators

• A useful collection of people that exchange ideas and experiences. (listserv)

• Serves as the liaison that improves communication between PIs and the IACUC

http://research.unc.edu/Offices/NLAC/
Useful Websites

• Office of Laboratory Animal Welfare [http://grants.nih.gov/grants/olaw/olaw.htm]


• IACUC [http://research.unc.edu/Offices/iacuc/]

• DCM [http://research.unc.edu/offices/laboratory-animal-medicine/index.htm]

• EHS [http://ehs.unc.edu/]
Contact Information

The Office of Animal Care and Use

Phone: 919-966-5569

Email: iacuc@med.unc.edu
Questions?