

Laboratory Animal Coordinator (LAC) Lecture

*Presented by the UNC IACUC
Office of Animal Care and Use (OACU)*

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THE UNIVERSITY
of NORTH CAROLINA
at CHAPEL HILL



Summary

- Overview (IACUC, OACU, protocols)
 - Requesting animal research
 - Protocol review process
- Laboratory Animal Coordinator (LAC) Responsibilities
 - Know/use ACAP
 - Documentation
 - Training & Compliance
- Inspections
 - Types
 - Topics covered, categories of comments

Overview of IACUC, OACU, Protocols

- Institutional Animal Care and Use Committee (IACUC)
- Requesting Animal Research
- Protocol Review Process



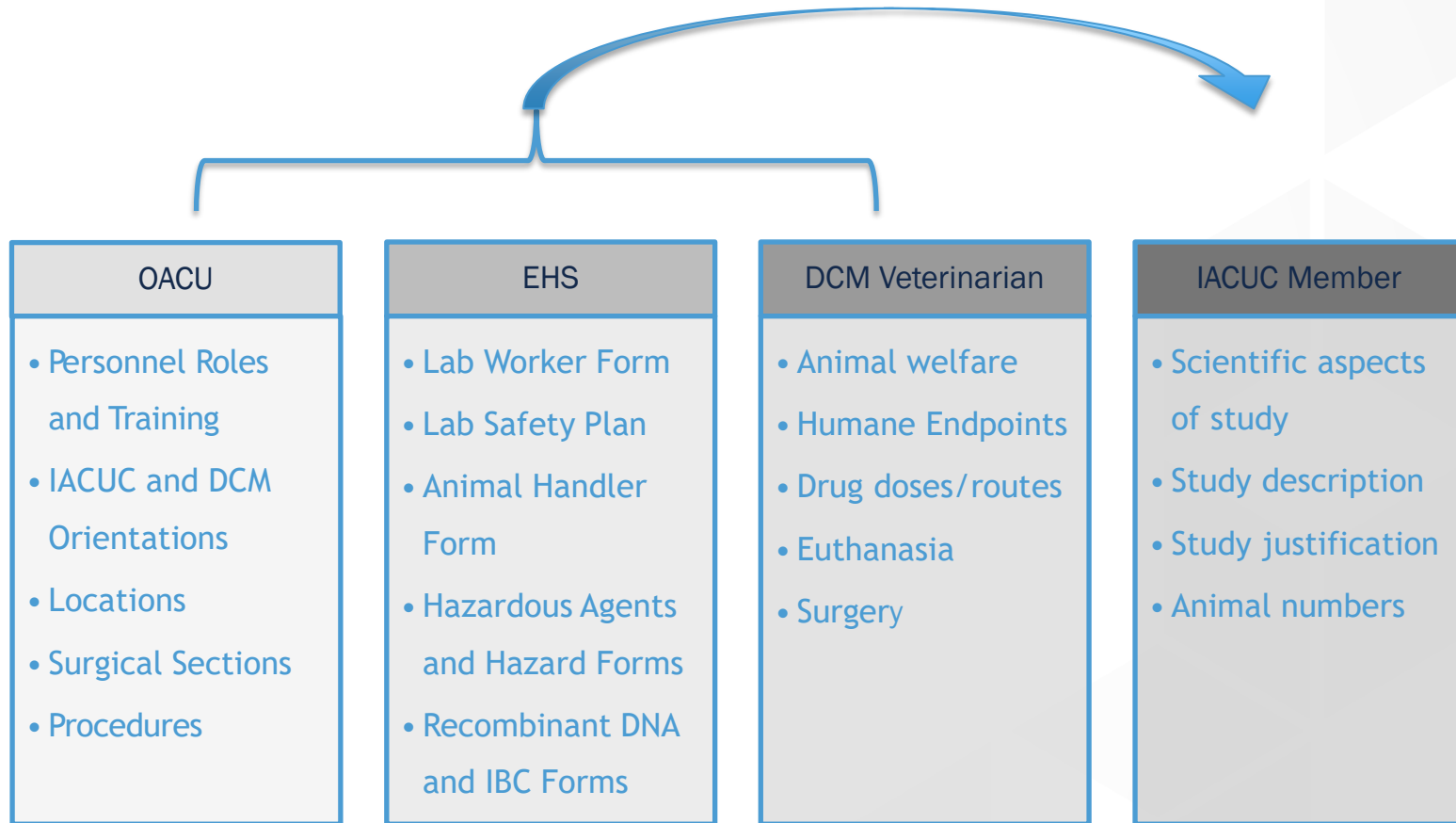
UNC IACUC

- Responsible for oversight, assessment of animal care and use program
- Supported by Office of Animal Care and Use (OACU)
- 5 members minimum (NIH requirement):
 - Veterinarian
 - Practicing scientist
 - Non-scientist member
 - Non-affiliated member
- Monthly meetings to review program, **protocols**





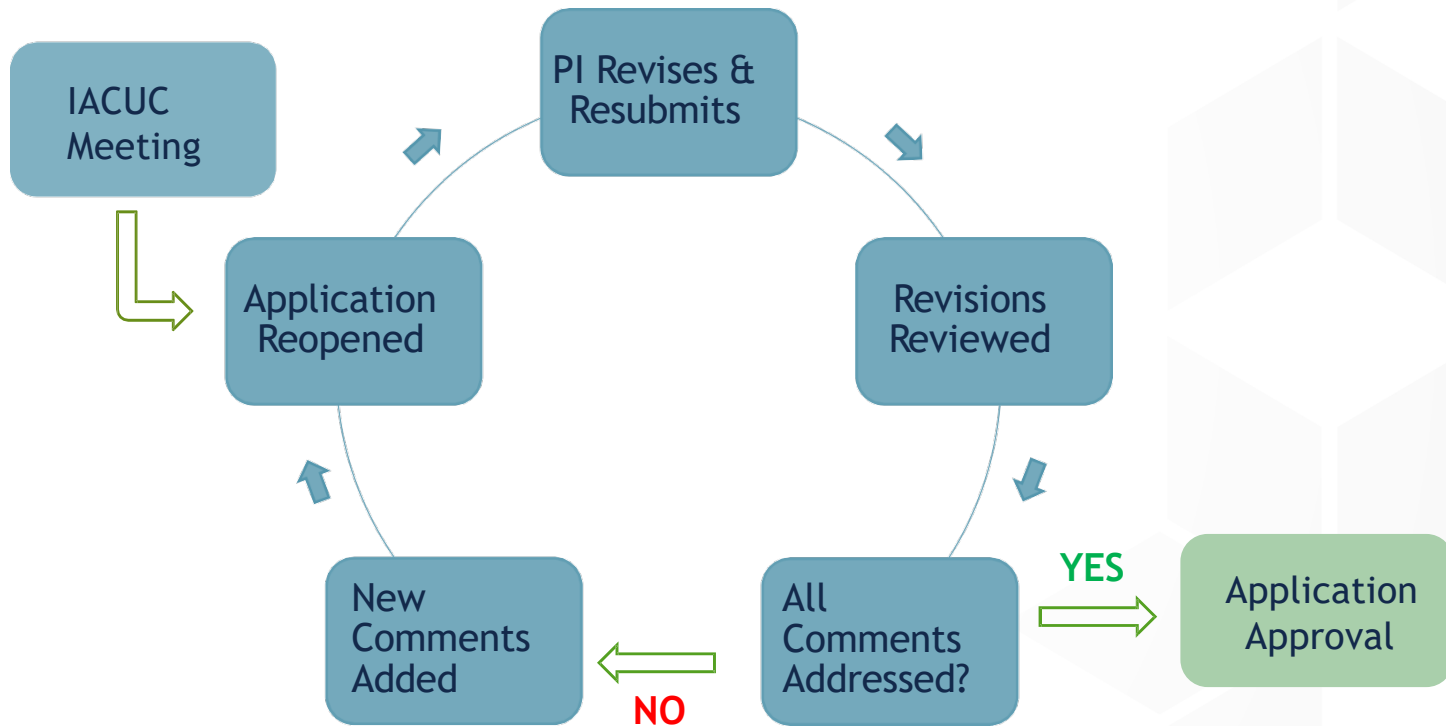
Protocol Review Process



- *This is not a comprehensive list & there is often overlap between reviewers*



Post-IACUC Meeting Process





Protocol Review Process – Important Dates

Submit IACUC applications on time!

- Due by 15th of the month *prior* to the expiration date
- Submit **continuation** applications a month early (~ 10 wks prior to expiration)
- Avoid expiration while actively funded or animals in-house



Amendments (Post-approval)

Changes to an approved protocol must be approved by the IACUC prior to implementation!

Common amendments

- Personnel and/or techniques
- Locations
- Anesthetics or analgesia
- Euthanasia methods
- Adding animal numbers

Helpful links

- ✓ [Amendment Guidelines](#)

Laboratory Animal Coordinator (LAC)

- Know/use ACAP
- Documentation
- Training & Compliance
- EHS-related



Laboratory Animal Coordinator (LAC) Program

- Implemented 2004
 - Serve as main contact/manager of lab
 - Ensure animal handlers receive hands-on training

Useful links

- ✓ [Step by step instructions for becoming an LAC](#)
- ✓ [Background information on the LAC Program at UNC](#)



LAC Responsibilities

- Liaison between lab and the IACUC
- Coordinate animal activities
- Ensure lab members properly trained in hands-on procedures
- Assist PI/lab in maintaining compliance with
 - animal welfare rules/regulations
 - approved protocols
- At least one *approved* LAC required on all active IACUC protocols
 - *BEFORE* leaving, inform IACUC and add new LAC to protocol



Using ACAP (Animal Care Application) as an LAC

- ACAP outlines proposed research in terms a lay person would understand
- Main sections
 - Research personnel and training
 - Animal housing
 - Animal species and number justification
 - Pain categories of animals
 - Objectives and rationale for study
 - Surgery, tumors, behavior
 - Tissues, fluids collected
 - Humane endpoints, euthanasia
- **Read your protocol prior to performing any animal work!**

Helpful link

- ✓ For more details on the UNC [ACAP Online Application](#)



Required Online Training/Orientation

- Protocol approval contingent on completion of orientation and training for all personnel on application
 - Research Profile
 - Lab Worker Registration
 - Animal Handler Profile – annually
 - DCM Orientation – every 3 years (if animals housed in DCM facilities)
 - IACUC Orientation

*Complete through [Animal Research Registration](#)



Online Requirements

>> Protocol Management :

Project Title: Colony Management Core

Species: **Mouse**

IACUC ID:

PI:



[View Current Application](#)
(including approved amendments)



[Print IACUC Signature Page](#)

>> PERSONNEL

	Research Profile	Lab Worker Form	Animal Handler	IACUC Orientation	DCM Orientation	Training
Researcher (PI)	✓	✓ N/A	✓ N/A	✓	✓ Exempt	✓
Researcher * (Co-PI LAC)	✓	✓	✓ Last Reviewed: 10/15/2018	✓	✓ Expires: 3/21/2022	✓
Researcher	✓	✓	✓ Last Reviewed: 11/20/2018	✓	✓ Expires: 3/21/2022	✓
Researcher	✓	✓	✓ Last Reviewed: 12/04/2018	✓	✓ Expires: 3/21/2022	✓
Researcher	✓	✓	✓ Last Reviewed: 01/22/2019	✓	✓ Expires: 3/21/2022	✓
Researcher	✓	✓	✓ Last Reviewed: 03/22/2019	✓	✓ Expires: 3/21/2022	✓



When training is needed.....

Research Profile	Lab Worker Form	Animal Handler	IACUC Orientation	DCM Orientation	Training
✓	✓	✓ Expires: 11/12/2019	✓	✓ Expires: 2/14/2020	✓
✓	✓		✓	✓ Exempt	<u>Needed</u>
✓	✓	✓ Expires: 04/23/2020	✓	✓ Expires: 10/07/2022	✓
✓	✓	✗ Expired: 09/13/2022 AHF Submitted: 09/02/2021 EHS Processed: 09/13/2021	✓	✓ Expires: 3/31/2020	✓
✓	✓	✓ Expires: 07/29/2020	✓	✓ Expires: 11/11/2019	✓

Red Check:

Online training item has expired

Yellow Check:

Online training item will expire soon

Needed:

Hands-on training required

Blank:

Online training item has not yet been completed



Training - IACUC/OACU Classes

- [LAC Lecture](#) (mandatory)
- [Mouse Cage Density Lecture](#) (mandatory)
 - [Mouse Cage Density Standard](#)

Helpful links

- ✓ To register for classes: [UNC Event Registration System](#)
- ✓ For more information on classes: [Training Overview](#)



Training - DCM Classes

- Mouse Handling and Techniques
- Rat Handling and Techniques
- Aseptic Techniques

- Voluntary [Mouse Colony Management Lecture](#)



Training - DCM Veterinary Services

- All species other than mice and rats
 - Schedule training and certification with Veterinary Technician Supervisor at 843-3407
- Isoflurane vaporizer training
 - Schedule training – email DCMTraining@unc.edu





Training - LAC Proficiency Assessment

Assessed during hands-on rodent training classes

- I. Allowed to train and certify laboratory personnel immediately
- II. More experience required before training others
- III. Significantly more experience required before proficiency of LAC

****Must use a live animal**



Training/Certifying Lab Members

- LAC may not train/certify in the following techniques:
 - Retro-Orbital Bleed
 - Retro-Orbital Injection
 - Cervical Dislocation without Anesthesia
 - Decapitation without Anesthesia
 - USDA-regulated species surgical techniques

IACUC Inspections

- Types of inspections
- Documentation/monitoring
- Noncompliance



IACUC Inspection Types

- Semiannual
- Informational
- PI-maintained Satellite Facility
- *(With/without Procedural Observation)*

Helpful links

[Types and Frequency of Inspections and Laboratory Visits Conducted by the IACUC](#)





Procedural Observation

- Procedural Observation required for studies involving
 - Surgery (survival / non-survival)
 - Behavioral with aversive conditioning
 - Pain category E

Helpful links

- ✓ [Procedural Observation Description](#)



Inspection Topics & Questions

- General IACUC/OACU updates
- Documents/postings (e.g. Animal Concerns, Emergency Numbers)
- Health & Safety (e.g. eyewash, gas tanks)
- Animal Care (e.g. records, health issues)
- Agents Administered (e.g. controlled substances, anesthesia, analgesia)
- Physical space (e.g. impervious, cleanliness)
- Surgery details (e.g. aseptic techniques, records)

✓ [IACUC Semi-annual and Satellite Inspection Checklist](#)



Inspection Topics & Questions

1. BRIEF SUMMARY OF WORK CONDUCTED IN THE LABORATORY

Summary Conducted

2. DOCUMENTATIONS and IACUC POSTINGS

How lab emergency contact information available (in facility, to OACU)? Last update in animal facility?

Verify: Reporting an Animal Concern, CO2 Euthanasia, Needle Safety, Emergency Phone Numbers

Verify: Hazardous agent warning signs visible upon laboratory entry (i.e., radiation, biohazard, chemicals, ABSL); How laboratory personnel trained prior to initial use?

How protocols/amendments made available to and reviewed by lab?

Other

3. HEALTH AND SAFETY

Verify: Gas cylinders secured; eyewash check documented/dust caps; fume hoods, BSL cabinets, laminar hoods certified

Verify: Proper sharps disposal, not full (if metal: no rust). How disposed?

[Chemical/biological hazards in animals] Describe process for identifying hazards and notifying animal facility

[Soflurane/dental acrylic/volatile fumes] Completed online EHS training?

If active scavenging (e.g., chemical fume hood, vacuum) skip next question

If passive scavenging/bench top: describe procedures for scavenging volatile fumes. Vaporizers: F/air canister weight and placement, vaporizer certifications; contact EHS for assessment

How dispose of animal carcasses?

How dispose of hazardous waste (including animal carcasses)?

How/when animal handlers update online training? (e.g., Animal Handler form, DCM orientation, etc.) Who verifies?

How and for what instances are animal handlers advised to contact the University Employee Occupational Health Clinic? All new animal handlers registered with UEOHC?

Other

4. ANIMAL CARE

Steps taken if animal health concern discovered (e.g., who contacted, etc.)

[USDA-regulated species] Review clinical records for individual animals (if singly housed = cage card)

[Euthanizing in lab space] Describe euthanasia method (Verify: same as in approved protocol)

[Decapitation] How ensure tools sharp/adequate (e.g., frequency)? [Cervical dislocation] How is training ensured?

How animal usage tracked?

[Euthanizing pups prior to weaning] How unweaned pups accounted for in animal usage table, reported semi-annually?

Check experimental monitoring documentation (e.g., weight loss, tumor size, etc.) as described in 6.0.2

[Toe clipping] Used for both genotyping/identification (Standard = max day 7, max 4 toes, 2 toes per foot, not the dewclaw, approved in ACAP)

Other

5. AGENTS ADMINISTERED

How ensure only pharmaceutical or veterinary grade agents used? (Sigma, USP reference standards cannot be used clinically)

[Non-pharmaceutical agents (e.g., tr bromoethanol/avertin)] Verify: approval in Section 11.3; Describe preparation (sterile agents, proper storage and maintenance); Provide link to Standard

List analgesia/anesthesia used (ensure agents described in approved protocol)

Verify: proper records maintained for agents used for anesthesia, analgesia, euthanasia, and acute intervention

[Controlled substances] Verify: documentation (stock and working solutions); double lock

How lab personnel ensure drugs and biological agents are within expiration date? (Verify: expired drugs separated or marked appropriately)

Other

6. PHYSICAL PLANT- Lab Space

Interior surfaces smooth and impervious to moisture

General cleanliness; no unnecessary items and clutter

[Behavior studies] Condition of behavioral boxes/secondary enclosures; method and agents used for cleaning, on DCM biological monitoring schedule (provide contact if not)

Other

7. SURGICAL PROCEDURES- General Considerations

[SS] How is traffic minimized?

[SS] Design/separation of functional components according to the Guide (i.e., animal preparation, surgical area, post-op recovery)



Inspection comments

Categories

- N/A
- Acceptable/OK
- No Deficiency (“teachable moment”)
- Minor Deficiency
- Significant Deficiency



Deficiencies

- Respond with corrective action by date specified on inspection report
- Presented anonymously at monthly IACUC meeting



Required Drug Documentation

All uses of anesthetics, analgesics, euthanasia agents **must** be documented

- **Common Anesthetics:** Isoflurane, Avertin, Ketamine/Xylazine, Pentobarbital
Lidocaine, Bupivacaine
- **Common Analgesics:** Acetaminophen, Meloxicam, Buprenorphine, Carprofen
- **Common DEA Controlled drugs:** Ketamine, Buprenorphine, Pentobarbital

Helpful links

- ✓ [Isoflurane Vaporizer Log](#)
- ✓ [Isoflurane Drop Method log](#)
- ✓ [Rodent anesthesia/analgesia procedure record](#) (survival surgeries)
- ✓ [Anesthesia/analgesia drug log template](#) (controlled substances)



Required Lab Postings

- How to report animal mistreatment or animal use application noncompliance
 - **Where?** Anywhere animal work is performed
- Emergency telephone numbers
 - **Where?** Any central location(s) in the lab
- Needle safety (if applicable)
 - **Where?** Anywhere needles are used in live animals
- CO₂ Euthanasia (if applicable)
 - **Where?** Anywhere animals are euthanized with CO₂



IACUC Standards

- Standard – Minimum acceptable limits or rules used to achieve Policy implementation, **enforceable** by IACUC
 - IACUC creates, reviews, revises Standards monthly
 - Updated on IACUC webpage and policies.unc.edu

Commonly referenced UNC Standards

- [ADMINISTERED AGENTS](#)
- [RODENT BLOOD WITHDRAWAL AND TAIL BIOPSY](#)
- [RAT AND MOUSE EUTHANASIA](#)
- [DISPOSAL OF RODENT CARCASSES](#)
- [ANIMAL TRANSPORT AND BIOSECURITY](#)
- [FOOD AND/OR WATER RESTRICTION AND/OR DEPRIVATION](#)
- [WEIGHT LOSS IN RESEARCH ANIMALS](#)



Network of Laboratory Animal Coordinators

- UNC listserv of LACs exchanging ideas, resources and experiences
 - Offer/request extra animals, supplies, equipment
 - Request expertise on procedures

<http://research.unc.edu/Offices/NLAC/>





Useful Websites

- Office of Laboratory Animal Welfare
[http:// http://grants.nih.gov/grants/olaw/olaw.htm](http://grants.nih.gov/grants/olaw/olaw.htm)
- *Guide for the Care and Use of Lab Animals*
<http://grants.nih.gov/grants/olaw/Guide-for-the-Care-and-Use-of-Laboratory-Animals.pdf>
- IACUC
<http://research.unc.edu/Offices/iacuc/>
- DCM
<http://research.unc.edu/offices/laboratory-animal-medicine/index.htm>
- EHS
<http://ehs.unc.edu/>
<https://ehs.unc.edu/lab/lsp/> (Laboratory Safety Plan)

Contact Information

The Office of Animal Care and Use

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Website: [UNC IACUC Homepage](#)