



# INSTITUTIONAL ANIMAL USER TRAINING PROGRAM

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Online Courses and Hands-On Workshops  
Outline - 2018

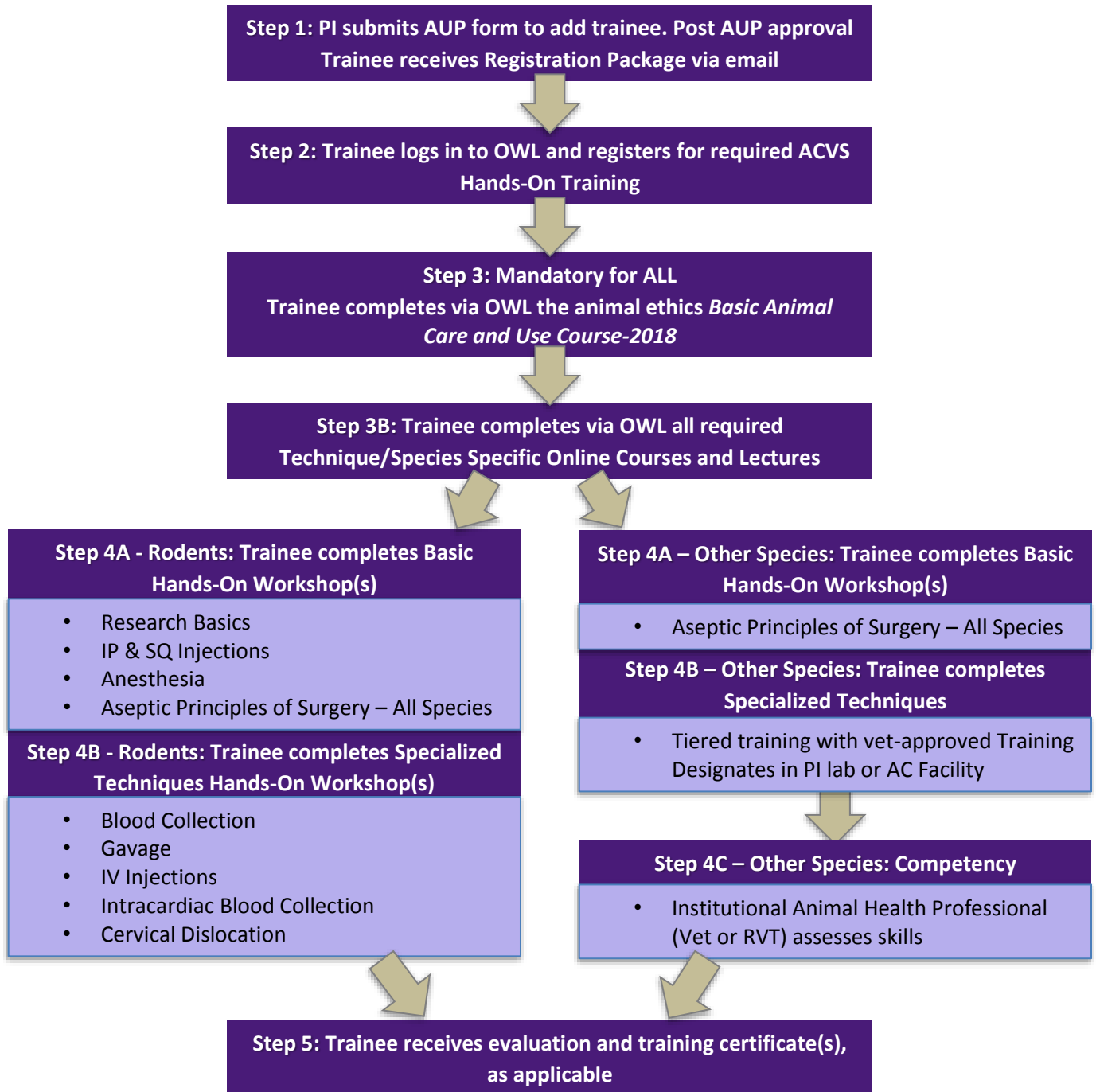
# Institutional Animal User Training Program Course Outlines

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# Institutional Animal User Training Program Course Outlines

## I. Institutional Animal User Training Program Steps



# Institutional Animal User Training Program Course Outlines

## II. Governing Institutional Policies and Procedures

The Institutional Animal User Training Program is governed by a Senate-level policy (MAPP 7.10 Institutional Animal User Training Program) and its procedure, which are located on both the ACC's OWL site <https://owl.uwo.ca/portal/site>, and Western's University Secretariat website: [https://www.uwo.ca/univsec/pdf/policies\\_procedures/section7/mapp710.pdf](https://www.uwo.ca/univsec/pdf/policies_procedures/section7/mapp710.pdf) [https://www.uwo.ca/univsec/pdf/policies\\_procedures/section7/mapp710\\_procedures.pdf](https://www.uwo.ca/univsec/pdf/policies_procedures/section7/mapp710_procedures.pdf)

## III. Trainee Competency

According to MAPP 7.10 'trainee competency' is defined as: *"as per CCAC, the ability to effectively perform a particular task in relation to the care, maintenance or use of animals, while ensuring their welfare is protected as far as possible within the constraints of any approved AUPs."*

Please note that workshop training provides an exposure to skills only, and limited practice is facilitated during the workshop. Depending upon the individual's previous experience and/or skill level with particulars, more practice may be required in the lab under the supervision of a competent researcher/supervisor before attaining competency.

| Training Session Name                 | Session Type | Sign-Up Method | Location |
|---------------------------------------|--------------|----------------|----------|
| Basic Animal Care and Use - BACUC     | Online       | Pre-Registered | OWL      |
| Robert Handling & Care - Mouse        | Workshop     | DWL            | AV 106   |
| Robert Handling & Care - Rat          | Workshop     | DWL            | AV 106   |
| IP & SQ Injections - Mouse            | Workshop     | DWL            | AV 106   |
| IP & SQ Injections - Rat              | Workshop     | DWL            | AV 106   |
| Gas Anesthesia                        | Workshop     | DWL            | AV 106   |
| Hydration & Restraint                 | Workshop     | DWL            | AV 106   |
| Anatomical Principles of Surgery      | Workshop     | DWL            | AV 106   |
| Surgical Closure Techniques - All     | Workshop     | DWL            | AV 106   |
| Special                               |              |                |          |
| Blood Collection - Mouse              | Workshop     | DWL            | AV 106   |
| Blood Collection - Rat                | Workshop     | DWL            | AV 106   |
| Intact/Alive Blood Collection - Mouse | Workshop     | DWL            | AV 106   |
| Intact/Alive Blood Collection - Rat   | Workshop     | DWL            | AV 106   |
| Cardiac Dissection - Mouse            | Workshop     | DWL            | AV 106   |
| IP Injections - Mouse                 | Workshop     | DWL            | AV 106   |
| IP Injections - Rat                   | Workshop     | DWL            | AV 106   |
| Robert Garage - Mouse                 | Workshop     | DWL            | AV 106   |

## IV. Enrollment Instructions

In order to sign up for training, the individual(s) name must first be listed on an approved AUP. If not, the Principal Investigator (PI) must submit a Protocol Modification to the Animal Care Committee office via [eSirius 3G](#). Upon ACC approval, the Animal User Training Team will email registration information to the individual regarding the required online courses, online lectures and hands-on workshops. Trainees are automatically registered for online theory in OWL; trainees are responsible to sign up for hands on workshops via OWL (instructions are provided within the registration email).

Sample Registration Email

Corresponding online OWL courses for the hands-on workshops must be successfully completed at **least 2 business days prior to each workshop**.

Certification will not be granted until all training portions have been successfully completed.

Requirements for trainee involvement in Hands-On Workshops: Trainees are responsible for bringing

1. **Fitted N95 Approved Mask** – Participant without NIOSH fitted mask will be denied participation in the workshop and a 'No Show Fee' will be applied.

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2. **Clean Lab Coat/Gown** - For bio-containment concerns, a disposable gown is recommended. If a disposable gown is provided by the trainers, a cost-recovery fee will be applied.

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### V. Basic Animal Care and Use Course - Online

The Canadian Council for Animal Care (CCAC) requires all personnel who work with animals in teaching and research within Western's Research Community to complete this online course. This course follows CCAC guidelines on training of personnel working with animals in science: "All personnel working with animals in science must be knowledgeable about the principles of humane experimental science and ethical issues associated with the use of those animals."

Principal Investigators, Co-Investigators, research personnel, veterinary technician and animal care staff must complete this course. As required, Undergrad Trainees are offered a separate ethics lecture.

The course material for the Basic Animal Care and Use Course (2018) is presented in two parts. The following list provides detailed learning objectives for each module:

#### PART I

**Ethics in Animal Experimentation** - Trainees will have an introductory understanding of

- The socio-historical basis of the debate on animal experimentation
- Levels of ethical questioning in animal experimentation
- CCAC's 'Ethical Principles of Animal Experimentation' guidelines
- The Three Rs tenet (replacement, reduction and refinement)

**Three Rs of Humane Animal Experimentation** - Trainees will understand

- The definition of Three Rs
- 'Alternatives' in research, teaching and testing

**Animal Ethics and Care Program Oversight** - Trainees will understand

- External regulatory bodies and related regulations
- Western's internal accountability structure
- Institutional policies and procedures structure
- Key elements of policies and procedures directly impacting hands-on animal users

**Occupational Health & Safety in Animal Experimentation** – Trainees will understand

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- The importance of hazards awareness and supporting a safe working environment, including risk assessment, safety controls, and personal protective equipment in animal-based science
  - Laws, regulations and policies followed at Western University
  - Animal and agent specific hazards, including four biohazard groups
  - Potential allergies associated with animal exposure
  - Key aspects of safe handling and performing manipulations
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### **PART TWO - Animals Housed in Vivaria**

#### **Laboratory Animals used in Biomedical Research – Trainees will understand**

- Animal model selection in biomedical research
- The importance of accounting for and controlling the variables in the experimental design
  - How to develop a checklist of the variables that can affect research programs
- How to describe and accept responsibility for ensuring the successful conduct of an experiment

#### **Infectious Diseases – Trainees will understand**

- How infectious diseases may be introduced to an animal facility and what steps should be taken to exclude those diseases
- How infectious diseases spread and how they may be controlled when identified within a facility
- The basics of health monitoring programs for detecting diseases in research animals

#### **Euthanasia – Trainees will understand**

- The principles of euthanasia, including criteria for humane euthanasia
- The emotional impact upon people
- Advantages and disadvantages of a euthanasia methods and their impact upon the experimental model

#### **Pain, Distress and Endpoints – Trainees will understand**

- A framework for identifying factors that could negatively impact animal welfare and experimental results
- At an introductory level how to recognize and minimize pain and distress in research animals
- Provide a framework to set and monitor endpoints

#### **Environmental Enrichment – Trainees will understand**

- the concept and its potential impacts upon research outcomes
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## **VI. Rodent Research Basics Online Lecture**

**Pre-requisite:** *Basic Animal Care and Use OWL course; Rodent Handling and Care OWL Course*

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**Workshop Time:** 45 minutes Video Lecture

This workshop is a requirement for individuals identified in an *Animal Use Protocol* as working with handling rodents, with interactive information about behaviour indicators of health and well-being.

**Learning Objectives:** Trainees will understand

- Animal welfare concepts and regulations
- Rodent basic biology, sexing, behavior identification, husbandry and normal rodent behaviour
- Basic techniques of rodent handling and restraint
- Animal 'normal' and 'abnormal' clinical signs
- The importance of early experimental endpoints
- Euthanasia using CO<sub>2</sub>
- The importance of records maintenance

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## VII. Rodent Handling and Care Workshop

**Pre-requisite:** *Rodent Handling and Care OWL online course; Rodent Research Basics Lecture*

**Workshop Time:** ~45 minutes practice/species

**Required PPE:** Bring your own lab coat and N-95 (Niosh) mask

This workshop is a requirement for individuals identified in an *Animal Use Protocol* as working with handling, monitoring or animal identification of rodents, e.g. genotyping. Course content includes legislation, guidelines, rodent behavior, clinical assessment (recognition of illness and injury), post-procedure monitoring, husbandry, environmental enrichment and euthanasia.

**Learning Objectives:** Trainees will be able to

- Assess rodent 'normal' and 'abnormal' clinical signs
- Understand the sick animal response process
- Distinguish between males and females
- Demonstrate appropriate rodent handling and restraint techniques, including cage to cage transfer
- Perform socialization in rats
- Weigh animals accurately
- Practice required record-keeping

At the end of this course, Trainees will be assessed in order to determine whether they have demonstrated competency in these techniques.

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## VIII. IP & SQ Injections Mouse or Rat Workshop

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## Course Outlines

**Pre-requisite:** *Mouse or Rat Injections OWL online course; IP & SQ Injections Lecture*

**Workshop Time:** ~1.5 hours

**Required PPE:** Bring your own lab coat and N-95 (Niosh) mask

This workshop is a requirement for individuals identified in an *Animal Use Protocol* as working with subcutaneous and intraperitoneal injections in mice and/or rats. Although this specialized session is geared toward people working with rats and mice, this course may be modified to meet the requirements of individuals using other species.

**Learning Objectives:** Trainees will be able to

- Understand the importance of using sterile technique
- Select appropriate syringes and needles
- Demonstrate safe needle handling
- Draw up solutions for injections using sterile technique
- Demonstrate proper rodent handling and restraint
- Demonstrate proper injections into a rodent, including sites
- Demonstrate required record keeping

At the end of this course, Trainees will be assessed in order to determine whether they have demonstrated competency in the techniques taught.

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## IX. Injectable Anesthesia Workshop

**Pre-requisite:** *Anesthesia OWL online course, Rodent Anesthesia Lecture, and Injections Workshop.*

**Workshop Time:** ~2 hours

**Required PPE:** Bring your own lab coat and N-95 (Niosh) mask

This workshop is a requirement for individuals identified in an *Animal Use Protocol* as working with any type of anesthetic agent associated with either acute or recovery anesthetic procedures.

**Learning Objectives:** Trainees will be able to

- Understand the effects of anesthesia in rodents involving injectable and gaseous anesthesia
- Learn the advantages and disadvantages of different anesthetic regimes
- Understand the planes of anesthesia and how to recognize different stages
- Calculate the anesthetic dosages and learn how to perform dilutions
- Complete a controlled drug record
- Draw up anesthetic agents
- Anaesthetize an animal and assess its depth properly



## Institutional Animal User Training Program Course Outlines

- Monitor, including anesthetic depth, and maintain temperature
  - Create and complete an anesthetic monitoring sheet
- Apply eye lubricant
- Learn and practice recovery methods
- Understand the important elements of post-anesthetic recovery
  - Prepare a recovery cage
  - Monitoring
  - Caging

At the end of this course, Trainees will be assessed in order to determine whether they have demonstrated competency in the techniques taught.

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### X. Gas Anesthesia Workshop

**Pre-requisite:** *Anesthesia OWL online course, Rodent Anesthesia Lecture, and Injections Workshop*

**Workshop Time:** ~2 hours

**Required PPE:** Bring your own lab coat and N-95 (Niosh) mask

This workshop is a requirement for individuals identified in an *Animal Use Protocol* as working with any type of anesthetic agent associated with either acute or recovery anesthetic procedures.

**Learning Objectives:** Trainees will be able to

- Understand the types, effects, advantages and disadvantages of injectable and gaseous anesthesia in rodents
- Understand the planes of anesthesia and how to recognize the different stages
- Understand proper anesthetic equipment setup, including a gas isoflurane machine
- Anaesthetize an animal using the gas anesthesia machine and assess its anesthetic depth properly
- Apply eye lubricant properly
- Practice different anesthetic concentrations and their impacts upon the animal
- Monitor and maintain temperature
  - Learn how to complete an anesthetic monitoring sheet
- Understand the important elements of post-anesthetic recovery
  - Prepare a recovery cage
  - Learn and practice recovery methods
  - Monitoring

At the end of this course, Trainees will be assessed in order to determine whether they have demonstrated competency in the techniques taught.

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# Institutional Animal User Training Program

## Course Outlines

### XI. Aseptic Principles of Surgery Workshop

**Pre-requisites:** *Aseptic Principles of Surgery OWL online, Aseptic Principles of Surgery Lecture, Injections and Anesthesia Mouse or Rat Training Sessions*

**Workshop Time:** ~1.5 hrs for each part of the session (Surgery I and Surgery II)  
*Non-rodent species and guinea pigs as required*

**Required PPE:** Bring your own lab coat and N-95 (Niosh) mask

This workshop is a requirement for individuals identified in an *Animal Use Protocol* as working with surgical procedures in all species. This is a demonstration and a 'mock up' practice session on how to prepare the animal for surgery, perform surgery, close tissues, tie knots, etc.

**Learning Objectives:** Trainees will be able to

- Learn about surgical instruments, their purpose, and how to use them to promote positive surgical outcomes
- Learn how to aseptically organize and maintain the surgical area including surgical instruments and pack
- Using animal models, learn and practice how to aseptically prepare oneself and the animal for surgery, including
  - surgical attire
  - aseptic hand scrub
  - surgical gloves donning - open gloving method
  - surgical drapes and/or press and seal
- Using animal models, learn and practice how to incise and general suturing and closure techniques
  - Simple interrupted, subcuticular sutures, and staples
  - Surgeon's knot
  - Surgical stapling and suture glueing

At the end of this course, Trainees will be assessed in order to determine whether they have demonstrated competency in the techniques taught.

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### XII. Blood Collection Techniques in Mouse or Rat Workshop

**Pre-requisite:** *Mouse or Rat Blood Collection OWL online course, Rodent Handling and Care, and Injections Workshop*

**PI Lab Specialized Workshop Time:** ~2 hours

**Required PPE:** Bring your own lab coat and N-95 (Niosh) mask

This workshop is a requirement for individuals identified in an *Animal Use Protocol* as working with rodent blood collection. This is a specialized session to learn different blood collection techniques. Although this specialized session is geared toward people working with rats and mice, this course may be modified to meet the requirements of individuals using other species.

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**Learning Objectives:** Trainees will be able to

- Learn and practice blood collection techniques from the saphenous and tail veins
  - Animal restraint and care
  - Proper technique pre-, intra- and post-procedure
- Compare various restraint equipment and techniques
- Understand acceptable blood sampling quantity and frequency
  - Volume measurement
  - Give consideration to species, size and health status
  - Quantity and type of sample needed, including sampling frequency

At the end of this course, Trainees will be assessed in order to determine whether they have demonstrated competency in the techniques taught.

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### XIII. IV Injection Techniques in Mouse or Rat Workshop

**Pre-requisite:** *Mouse or Rat IV Injections OWL online course, Rodent Handling and Care, and Injections Workshop*

**PI Lab Specialized Workshop Time:** ~2 hours

**Required PPE:** Bring your own lab coat and N-95 (Niosh) mask

This workshop is a requirement for individuals identified in an *Animal Use Protocol* as working with IV injections. Although this specialized session is geared toward people working with rats and mice, this course may be modified to meet the requirements of individuals using other species.

**Learning Objectives:** Trainees will be able to

- Learn and practice tail vein IV injections
  - Animal restraint and care
  - Proper technique pre-, intra- and post-procedure
- Compare various restraint equipment and techniques for this procedure
  - Acceptable quantities for an IV injection
  - Give consideration to species, size and health status
- Perform aseptic solution drawing technique

At the end of this course, Trainees will be assessed in order to determine whether they have demonstrated competency in the techniques taught.

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# Institutional Animal User Training Program

## Course Outlines

### XIV. Oral Gavage in Mice or Rats Workshop

**Pre-requisite:** *Mouse or Rat Gavage OWL online course, Rodent Handling and Care, and Injections Workshop*

**PI Lab Specialized Workshop Time:** ~2 hours

**Required PPE:** Bring your own lab coat and N-95 (Niosh) mask

This workshop is a requirement for individuals identified in an *Animal Use Protocol* as working with administering liquids to rodents via a gavage needle.

**Learning Objectives:** Trainees will be able to

- Properly handle and restrain the rodent in order to safely administer the solution via gavage needle
- Demonstrate proper gavage technique
- Understand potential associated complications
- Appropriately monitor the animal after the procedure and understand how to respond to any issues that may arise

At the end of this course, Trainees will be assessed in order to determine whether they have demonstrated competency in the techniques taught.

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### XV. Intra-Cardiac Blood Collection in Mice or Rats Workshop

**Pre-requisite:** *Mouse or Rat Injections Workshop, and Injections Workshop*

**PI Lab Specialized Workshop Time:** ~2 hours

**Required PPE:** Bring your own lab coat and N-95 (Niosh) mask

This workshop is a requirement for individuals identified in an *Animal Use Protocol* as working with intra-cardiac blood collection in mice or rats.

**Learning Objectives:** Trainees will be able to

- Understand the importance of deeply anesthetizing the animal
- Learn how to collect blood from the heart
  - Proper timing, procedure and problem-solving techniques

At the end of this course, Trainees will be assessed in order to determine whether they have demonstrated competency in the techniques taught.

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### XVI. Cervical Dislocation in Mice Workshop

**Pre-requisite:** *Mouse Handling and Care Workshop*

**PI Lab Specialized Workshop Time:** ~1.5 hours

## Institutional Animal User Training Program Course Outlines

**Required PPE:** Bring your own lab coat and N-95 (Niosh) mask

This workshop is a requirement for individuals identified in an *Animal Use Protocol* as working with cervical dislocation in mice.

**Learning Objectives:** Trainees will be able to

- Learn this specialized technique in order to humanely euthanize a mouse
  - Step 1 - Gain proficiency using a model (cadaver);
  - Step 2 - Perform this technique on an anaesthetized mouse
    - Review the techniques of proper animal monitoring
    - Recognize time of death

At the end of this course, Trainees will be assessed in order to determine whether they have demonstrated competency in the techniques taught.

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### **XVII. Rodent Endotracheal Intubation Workshop**

**Pre-requisite:** *Rodent handling and Care, Injections, and Anesthesia Workshop*

**PI Lab Specialized Workshop Time:** ~1.5 hours

**Required PPE:** Bring your own lab coat and N-95 (Niosh) mask

This workshop is a requirement for individuals identified in an *Animal Use Protocol* as working with intubating mice or rats.

**Learning Objectives:** Trainees will be able to

- Understand the anatomy of the laryngeal area
- Practice on deeply anaesthetized animals to ensure that intubation can be performed

At the end of this course, Trainees will be assessed in order to determine whether they have demonstrated competency in the techniques taught.

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### **XVIII. Rabbit Handling and Care +/- Injections Workshop**

**Pre-requisites:** *Rabbit Handling & Care and/or Injections OWL online courses*

**Workshop Time:** *As required*

**Required PPE:** Bring your own lab coat and N-95 (Niosh) mask

This workshop is a requirement for individuals identified in an *Animal Use Protocol* as working with rabbits. Participants will learn to restrain, handle and perform subcutaneous and intramuscular injections, as well as understand behavior and husbandry. Realistic models are used to assist in training.

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## Course Outlines

**Learning Objectives:** Trainees will be able to

- Identify different behavioural characteristics of rabbits
- Understand rabbit husbandry and environmental enrichment
- Understand rabbit basic health care and monitoring
- Recognize signs of pain and illness
- Understand potential zoonotic diseases  
As required by the AUP...
- Obtain a blood sample from the central auricular artery
- Perform an intravenous injection into the lateral ear vein

At the end of this course, Trainees will be assessed in order to determine whether they have demonstrated competency in the techniques taught.

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### **XIX. Rabbit Anesthesia Workshop**

**Pre-requisite:** *Rabbit Injectable or Gas Anesthesia OWL online course*

**Workshop Time:** *As required*

This workshop is a requirement for individuals identified in an *Animal Use Protocol* as working with rabbit anesthesia. Participants will have the opportunity to observe the effects of injectable and/or gaseous anesthesia, depending on needs. Intubation will be discussed according to the Animal Use Protocol (AUP). Whether anaesthetizing for an acute procedure or a recovery procedure, this workshop is a requirement when any type of anesthetic agent is listed on the AUP.

**Learning Objectives:** Trainees will be able to

- Understand the effects of anesthesia in rodents involving injectable and gaseous anesthesia
- Learn the advantages and disadvantages of different anesthetic regimes
- Understand the planes of anesthesia and how to recognize different stages
- Calculate the anesthetic dosages and learn how to perform dilutions
  - Complete a controlled drug record
- Draw up anesthetic agents
- Anaesthetize an animal using the gas anesthesia machine
- Anaesthetize an animal and assess its depth properly
- Monitor, including anesthetic depth, and maintain temperature
  - Create and complete an anesthetic monitoring sheet
- Apply eye lubricant
- Learn and practice recovery methods
- Understand the important elements of post-anesthetic recovery
  - Prepare a recovery cage
  - Monitoring
  - Caging

## Institutional Animal User Training Program Course Outlines

At the end of this course, Trainees will be assessed in order to determine whether they have demonstrated competency in the techniques taught.

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### XX. Specialized Species Training Program

**Pre-requisite:** *Basic Animal Care and Use Course, Species Specific Handling and Care OWL Courses*  
**Workshop Time:** *As required*

Specialized species training is a requirement for individuals identified in an *Animal Use Protocol* as working with specialized species –NHPs, cats, dogs, sheep, pigs, guinea pigs, birds, fish and amphibians – This species and technique-specific training program consists of:

- OWL online theory followed by,
- As appropriate to the species, AUP procedures and trainee, customized tiered hands-on training.

Institutional veterinarians and their designates assess training requirements and develop customized hands-on training programs, e.g. AUP and trainee specific training outlines, that may involve initial training by experienced training designates, e.g. PI technician, and may require final competency assessments by an institutional veterinarian or veterinary technician.

**Learning Objectives for specialized species online OWL theory:** Trainees will understand

- The social dynamics and normal behaviours of the specific species
- Procurement, holding and OH&S regulations and requirements
- Husbandry and environmental enrichment requirements
- Species specific basic health care and monitoring
  - Signs of pain and illness
  - Potential zoonotic diseases
- Proper handling and restraint techniques

At the end of applicable hands-on training, Trainees will be assessed according to the customized training outline in order to determine whether they have demonstrated competency in the techniques taught.

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