

ANIMAL CARE AND USE (ACU)

Series Catalog

CITI Program's ACU series has been designed to meet the needs of faculty, post-docs, students, technicians, and any other persons involved in the conduct of research that uses non-human vertebrate animals.

The ACU series consists of six basic courses, *Working with the IACUC*, *Essentials for IACUC Members*, *IACUC Community Member*, *Post-Procedure Care of Mice and Rats in Research: Minimizing Pain and Distress*, *Wildlife Research*, and *Post-Approval Monitoring (PAM)*, as well as two refresher options, *Working with the IACUC – Refresher* course and *IACUC Member Refresher Case Studies*.

A set of animal-specific courses provides information pertinent to specific animals including: Amphibians, Cats, Cattle, Dogs, Ferrets, Fish, Gerbils, Goats, Guinea Pigs, Hamsters, Horses, Mice, Non-Human Primates, Rabbits, Rats, Reptiles, Sheep, Swine, and Zebrafish. These courses should be taken as a supplement to a basic course.

Additional standalone courses include *Institutional Official: Animal Care and Use* and the *IACUC Chair* course. *Institutional Official: Animal Care and Use*, provides an introduction to the role and responsibilities of an institutional official (IO) responsible for academic and commercial animal care and use programs. The *IACUC Chair* course provides information on the roles and responsibilities of an IACUC Chair.

This catalog provides a listing, description, continuing education (CE) eligibility, and language availability for each module within the ACU course, as well as information on how to access the course.

Subscription Information

The ACU series is available to subscribing organizations as part of the **base subscription fee**. Independent Learner registration is available for \$110 USD/learner. For more information on subscriptions, [click here](#).

In order to meet the needs of subscribing organizations, the CITI Program can assist administrators in creating courses that best meet their organizational needs, including combining modules from across the CITI Program. To discuss course recommendations that combine modules from different CITI Program offerings, please contact the CITI Program Help Desk at support@citiprogram.org or (888) 529-5929.

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Basic Courses

The basic courses in the ACU series should be taken as separate courses. For recommendations on how to use a basic ACU course, see the [Using CITI Program Content: Animal Care and Use \(ACU\)](#) document.

Working with the IACUC

This course is intended for laboratory research personnel who will write animal-use protocols for review by an Institutional Animal Care and Use Committee (IACUC) member or who will handle animals under such protocols. It provides basic information regarding the U.S. regulations for protection of animal subjects used in research, teaching, and testing. It describes the sources and applicability of regulations governing animals in these uses. It describes the role, authority, and composition of the IACUC, the types of IACUC review, and the items of information required for the review. It discusses animal surgery, blood sample collection, antibody production (though this is discussed specifically in the Antibody Production in Animals course), and euthanasia. General discussions are also provided for requirements for personnel training and experience, and occupational health and safety. Recommendations for housing rodents, exercising dogs, enriching the environment of primates, and using human patient care areas for animals are provided. Finally, there is a discussion of the requirements for making changes in a project involving animals and the procedures for reporting inappropriate use of animals.

| Module Title | Recommended Use | ID (Language) |
|--|-----------------|----------------|
| Introduction to Working with the IACUC | Required | 1807 (English) |
| Working with the IACUC | Required | 1808 (English) |
| Federal Mandates | Required | 1809 (English) |
| The Veterinary Consultation | Required | 1810 (English) |
| Getting Started | Required | 1811 (English) |
| Alternatives | Required | 1812 (English) |
| Avoiding Unnecessary Duplication | Required | 1813 (English) |
| USDA Pain/Distress Categories | Required | 1814 (English) |
| Endpoint Criteria | Required | 1815 (English) |
| Surgery | Required | 1816 (English) |
| Antibody Production | Required | 1817 (English) |
| Collecting Blood Samples | Required | 1818 (English) |

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|--|--|----------------|
| Personnel Training and Experience | Required | 1819 (English) |
| Occupational Health and Safety | Required | 1820 (English) |
| Using Hazardous and Toxic Agents in Animals | Required | 1821 (English) |
| Housing Social Animals | Required | 1822 (English) |
| Housing Rodents on Wire Floors | Required | 1823 (English) |
| Dog Exercise | Required <i>(if applicable to your program)</i> | 1824 (English) |
| Primate Psychological Enrichment | Required <i>(if applicable to your program)</i> | 1825 (English) |
| Prolonged Restraint | Required | 1826 (English) |
| Euthanasia | Required | 1827 (English) |
| Using Human Patient Care Areas for Animal Research | Required | 1828 (English) |
| Using Explosive Agents in the Animal Facility | Required | 1829 (English) |
| Making Changes After You Receive Approval | Required | 1830 (English) |
| Reporting Misuse, Mistreatment, or Non-Compliance | Required | 1831 (English) |
| Final Comments | Required | 1832 (English) |

Introduction to Working with the IACUC

This module serves as an introduction to the *Working with the IACUC* course. It provides an overview of the overall goal and specific objectives that this course seeks to achieve.

Working with the IACUC

This module discusses the elements of working with an IACUC including who you should get in touch with when planning animal experiments, and the various roles and functions of the IACUC.

Federal Mandates

This module discusses the basic laws, guidelines, regulatory documents, and federal agencies that govern animal research in the United States.

The Veterinary Consultation

This module discusses the mandate for consulting with a laboratory animal veterinarian during the planning stages of any project that will involve more than momentary or slight pain and/or distress to animals.

Avoiding Unnecessary Duplication

This module discusses the regulatory mandate that prohibits the unnecessary duplication of previous animal studies, and how you can comply with the mandate.

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USDA Pain/Distress Categories

This module discusses how to correctly classify experimental procedures on laboratory animals into one of the four United States Department of Agricultural (USDA) pain/distress categories.

Getting Started

This module discusses the steps for completing and justifying your answers to important items contained within a typical animal protocol form.

Alternatives

This module discusses the concept of the "Three R's," the legal mandate for considering alternatives, and the various alternative and database search resources available to you.

Endpoint Criteria

This module discusses the need for and common examples of endpoint criteria.

Surgery

This module discusses survival, non-survival, major, minor, and multiple major survival surgeries. It also presents the need to document postoperative care and the concept of fasting animals prior to surgery is covered.

Antibody Production

This module discusses the production of polyclonal and monoclonal antibodies in animals, which is critical for biomedical research progress.

Collecting Blood Samples

This module presents the guidelines to prevent excess blood collection in all animals including some special information on collecting blood from rodents.

Personnel Training and Experience

This module discusses the importance of training for personnel involved in animal research, and the need for the IACUC to ensure personnel are qualified to perform the procedures proposed in the animal protocol forms.

Occupational Health and Safety

This module discusses the institutional requirement for an Occupational Health and Safety Program (OSHA), as well as some of the typical services a program may offer.

Using Hazardous and Toxic Agents in Animals

This module discusses the guidelines to follow when performing work on animals involving toxic or infectious agents, the four biosafety levels and their corresponding animal biosafety levels, corresponding safety levels for working with recombinant DNA, and working with "select agents" with biological warfare potential.

Housing Social Animals

This module discusses the need to house social animals in pairs or groups whenever possible, and the need to justify single housing.

Housing Rodents on Wire Floors

This module discusses the need to preferentially house rodents in solid bottom cages with contact bedding.

Dog Exercise

This module discusses the requirement for an institutional dog exercise program.

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Primate Psychological Enrichment

This module discusses the requirement for an institutional primate psychological enrichment program.

Prolonged Restraint

This module discusses the guidelines for prolonged restraint of animals.

Euthanasia

This module discusses the various methods of euthanasia for animals.

Using Human Patient Care Areas for Animal Research

This module discusses being sensitive to cleanliness when human clinical areas are used for animal research.

Using Explosive Agents in the Animal Facility

This module discusses using explosive agents, such as ether, to anesthetize or euthanize animals in the animal facility.

Making Changes after You Receive Approval

This module discusses the requirement for obtaining IACUC approval prior to making significant changes to animal procedures.

Reporting Misuse, Mistreatment, or Non-Compliance

This module discusses the procedures for reporting misuse or mistreatment of animals or non-compliance of federal regulations or guidelines.

Final Comments

This module provides final remarks regarding the *Working with the IACUC* course.

Additional Modules of Interest

This module discusses the principles of aseptic technique with an emphasis on the practical application of these principles in the laboratory setting.

| Module Title | Recommended Use | ID (Language) |
|--------------------------------|-----------------|-----------------|
| Aseptic Surgery | Supplemental | 12840 (English) |
| Antibody Production in Animals | Supplemental | 13325 (English) |

Aseptic Surgery

This module discusses the principles of aseptic technique with an emphasis on the practical application of these principles in the laboratory setting.

Antibody Production in Animals

This module discusses the production of polyclonal antibodies: the use of antigens and adjuvants and their ability to produce pain and distress. It discusses the process of immunization: its location and procedures. In addition, this course discusses the production of monoclonal antibodies and the use of ascites collection.

Essentials for IACUC Members

This course is intended for persons who are members of an Institutional Animal Care and Use Committee (IACUC). It assumes the user is already familiar with the content of the *Working with the IACUC* course, and it delves into the IACUC's responsibilities, authority, membership, and relationship to the institutional officer (IO). It discusses the review of animal-use protocols and the required semi-annual program review and facilities inspection. Finally, the procedures for investigating allegations of improper animal care and use are discussed.

Continuing Education (CE) Credits and Units

View [CE credits, certification, designation periods, and fees](#) for this course.

| Module Title | Recommended Use | ID (Language) |
|---|-----------------|----------------|
| Introduction to Essentials for IACUC Members | Required | 1833 (English) |
| Responsibilities of the IACUC and IACUC Members | Required | 1834 (English) |
| Constituting the IACUC | Required | 1835 (English) |
| The IACUC, the CEO, and the IO | Required | 1836 (English) |
| Authority of the IACUC | Required | 1837 (English) |
| Conducting IACUC Business—The Quorum | Required | 1838 (English) |
| Procedures for Reviewing Protocol Forms | Required | 1839 (English) |
| Outcomes of Animal Protocol Reviews | Required | 1840 (English) |
| The Types of Protocol Reviews | Required | 1841 (English) |
| Documenting IACUC Actions | Required | 1842 (English) |
| The IACUC Semi-Annual Evaluation | Required | 1843 (English) |
| Performing the Facility Inspection and the Program Review | Required | 1844 (English) |
| Identifying, Documenting, and Correcting Deficiencies | Required | 1845 (English) |
| Investigating Allegations of Improper Animal Care or Use | Required | 1846 (English) |
| Maintaining the Public Trust | Required | 1847 (English) |

Introduction to Essentials for IACUC Members

This module provides an overview to the *Essentials for IACUC Members* course. It outlines the goals and objectives that this course seeks to achieve.

Responsibilities of the IACUC and IACUC Members

This module covers the basic role and responsibilities of the IACUC. It also discusses the responsibilities of individual IACUC members and the best practices in upholding these responsibilities.

Constituting the IACUC

This module discusses the Public Health Service (PHS) policy and the Animal Welfare Regulations (AWR), both of which require members with certain backgrounds and skills to serve on an IACUC. Only an IACUC that has all the required members appointed is considered to be a *constituted* IACUC.

The IACUC, the CEO, and the IO

This module covers the roles, responsibilities, and best practices for the CEO and the IO of an institution as they interact with an IACUC.

Authority of the IACUC

This module discusses the authority of an IACUC when it comes to approving and suspending certain activities involving animals in research, teaching, and testing.

Conducting IACUC Business — The Quorum

This module discusses the necessity of a quorum when conducting any formal business within an IACUC. It also delves into the different guidelines and methods that a quorum must follow when conducting business.

Procedures for Reviewing Protocol Forms

This module reviews the process and procedures that an IACUC must follow for protocol reviews.

Outcomes of Animal Protocol Reviews

This module reviews the different options that an IACUC may follow when deliberating the fate of a protocol as part of a full committee review at a convened meeting of quorum, as determined by the Animal Welfare Regulations and the PHS Policy.

The Types of Protocol Reviews

This module reviews the different categories of protocol reviews that an IACUC must consider for all approved animal activities.

Documenting IACUC Actions

This module discusses the importance of documenting, in writing, all IACUC deliberations and actions.

The IACUC Semi-Annual Evaluation

This module discusses semi-annual evaluations by the IACUC. This lesson covers the basic requirement for performing the evaluation and the components of the review.

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Performing the Facility Inspection and the Program Review

Discusses facilities inspections and program reviews, which are two distinct elements of semi-annual evaluations conducted by IACUCs.

Identifying, Documenting, and Correcting Deficiencies

Identifies how to categorize deficiencies resulting from a semi-annual evaluation.

Investigating Allegations of Improper Animal Care or Use

Defines the legal responsibility given to the IACUC to review, and if warranted, investigate allegations of improper animal use or concerns about such use.

Maintaining the Public Trust

Discusses how effective IACUCs must ensure that public trust is maintained.

IACUC Community Member

The *IACUC Community Member* course is intended for community representatives (non-scientific and/or non-affiliated members) within an Institutional Animal Care and Use Committee (IACUC). Community representatives should take this course, not the *Essentials for IACUC Members* course, as it is specifically designed for them. The course covers ethics, regulations and the IACUC, IACUC basics, Full-Committee Review (FCR) and Designated Member Review (DMR), and other responsibilities as well as additional tips for IACUC community members.

| Module Title | Recommended Use | ID (Language) |
|---|-----------------|-----------------|
| Ethics, Regulations, and the IACUC | Required | 15167 (English) |
| IACUC Basics | Required | 15169 (English) |
| FCR and DMR | Required | 15170 (English) |
| Other Responsibilities of IACUC Members | Required | 15171 (English) |
| Additional Tips for Community Members | Required | 15172 (English) |

Ethics, Regulations and the IACUC

This module provides a brief history of the regulations and the formation of the IACUC, reasons for community member involvement, and answers to common questions from community members.

IACUC Basics

This module describes the essentials of IACUC regulations, policies, and procedures.

Full-committee Review (FCR) and Designated Member Review (DMR)

This module details what community members may expect when participating in designated member review (DMR) and full-committee review of IACUC business.

Other Responsibilities of IACUC Members

This module describes the IACUC member's involvement in facility inspections, review of semiannual program evaluations, and other duties of the IACUC member.

Additional Tips for Community Members

This module contains suggestions for community members to help them review protocols and build community member skills.

Post-Procedure Care of Mice and Rats in Research: Minimizing Pain and Distress

This course provides information on how to minimize pain and distress in mice and rats during and after experimental procedures for personnel who work with these animals. It is assumed that the user has already completed the *Working with the IACUC* course. This course provides training in the detection and monitoring signs of pain in animals. It discusses the use of animal appearance and behavior, physical condition, and body weight in the monitoring process. The role of body temperature and fluid, and electrolyte balance in animal welfare are also discussed. Particular attention is paid to the growth of tumors in the production of pain and distress. Of course, there is a discussion of the alleviation of pain and distress in the post-procedure animal.

| Module Title | Recommended Use | ID (Language) |
|--|-----------------|----------------|
| Introduction to Post-Procedure Care of Mice and Rats in Research: Minimizing Pain and Distress | Required | 1868 (English) |
| Investigator Responsibility | Required | 1869 (English) |
| Minimizing Sources of Nonexperimental Variation | Required | 1870 (English) |
| Systematically Monitoring for Pain and Distress | Required | 1871 (English) |
| Detecting Clinical Signs of Pain and Distress | Required | 1872 (English) |
| Appearance and Behavior | Required | 1873 (English) |
| Physical Exam for Clinical Condition | Required | 1874 (English) |
| Body Weight | Required | 1875 (English) |
| Fluid and Electrolyte Balance | Required | 1876 (English) |
| Body Temperature | Required | 1877 (English) |
| Tumors | Required | 1878 (English) |
| Alleviation of Pain and Distress | Required | 1879 (English) |
| Documentation of Post-Procedure Care | Required | 1880 (English) |
| Summary | Required | 1881 (English) |

Introduction to Post-Procedure Care of Mice and Rats in Research: Minimizing Pain and Distress

This module serves as an introduction to the *Post-Procedure Care of Mice and Rats in Research: Minimizing Pain and Distress* course. It reviews the goals and objectives that this course seeks to achieve.

Investigator Responsibility

This module discusses the investigators' responsibilities for minimizing pain and distress in research animals. A concise description of the requirements for the humane care and use of laboratory animals is also provided.

Minimizing Sources of Nonexperimental Variation

This module discusses the importance and best practices for maximizing the humane care and use of laboratory animals while minimizing confounders (unwanted, uncontrolled experimental variation) to achieve integrity of the research data.

Systematically Monitoring for Pain and Distress

This module discusses the process of systematically monitoring animals after a procedure or when illness is expected, to reduce non-experimental variation caused by animal pain or distress.

Detecting Clinical Signs of Pain and Distress

This module discusses how to detect pain and distress within a rodent. It presents common signs as well as the proper way to perform a clinical exam on a rodent.

Appearance and Behavior

This module discusses the proper process for inspecting the appearance and behavior of rodents. It also presents a common approach to assessing animal appearance through the observation of several parameters.

Physical Exam for Clinical Condition

This module discusses physical exams using methods that are appropriate to rodents. It presents specific methods and equipment for rodents, which allow a clinical exam to provide information on animal well-being.

Body Weight

This module discusses the vital role of monitoring body weight changes in rodents while executing experiments using these animals. It presents the different body condition scores and ways to provide nutritional support to these animals.

Fluid and Electrolyte Balance

This module discusses the importance of maintaining a fluid and electrolyte balance in rodents during experimental procedures. It explains in detail, how to test rodents for dehydration, the process for performing a urinalysis, and the proper treatment for an imbalance of fluids and electrolytes.

Body Temperature

This module discusses the importance of maintaining a proper body temperature within rodents during experimental procedures. It also presents information regarding the use of devices and the process for treating hypothermia.

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Tumors

This module discusses how the growth of tumors produces pain and distress in rodents just as in humans and other animals. It further analyzes how to assess a tumor and the proper treatment for tumors on rodents.

Alleviation of Pain and Distress

This module discusses the detection and alleviation of pain or discomfort in rodents. It also presents the idea that the effective recognition of pain and distress should not rely on a single clinical observation but rather on a composite of signs and measurements that together reflect animal well-being in terms of pain or distress.

Documentation of Post-Procedure Care

This module addresses the documentation of exam findings and treatments. It analyzes the benefits of using a records management system and a defined scoring system to aid in documenting the status of animals over time.

Summary

This module provides an overview to the *Post-Procedure Care of Mice and Rats in Research: Reducing Pain and Distress* course. It reviews the importance of good animal care during experimental procedures.

Wildlife Research

This course is intended for persons who study wildlife in the field or in captivity, and for those who oversee or review protocols for wildlife research. It describes the types of field studies, methods of animal capture, principles and methods of restraint, animal marking, animal transportation and housing, maintenance of wildlife in captivity, translocation and release, animal surgery, blood sample collection, recognition and management of pain, and euthanasia. This course is not intended as a substitute for the *Working with the IACUC* course.

| Module Title | Recommended Use | ID (Language) |
|--|-----------------|-----------------|
| Introduction to Wildlife Research Course | Required | 16308 (English) |
| Oversight, Compliance, and Training | Required | 16309 (English) |
| Permits, Pain and Distress Categories, Transportation, and Housing | Required | 16310 (English) |
| Conducting Field Research and Teaching Studies | Required | 16311 (English) |
| Research Procedures, Recognizing and Managing Pain, and Release | Required | 16312 (English) |

Introduction to Wildlife Research Course

This module serves as an introduction to the *Wildlife Research* course. It discusses the goal and objectives that the course seeks to achieve.

Oversight, Compliance, and Training

This module discusses the research mandates, occupational health, and training issues that are presented with wildlife research.

Permits, Pain and Distress Categories, Transportation and Housing

This module discusses the potential impact of research on wildlife populations and the permits required prior to starting. Also discussed are the pain and distress categories and applicability to wildlife research. It also presents methods for the humane transportation and housing of wildlife.

Conduct Field Research and Teaching Studies

This module discusses the various types of field research and teaching studies. It also discusses capture, restraint, and marking techniques.

Research Procedures, Recognizing and Managing Pain, and Release

This module discusses research procedures and methods of recognizing and managing pain in wildlife. Also discussed are common types of minor and major procedures performed in wildlife, and release methods.

Post-Approval Monitoring (PAM)

This single-module course is intended for anyone involved in post-approval monitoring, such as IACUC members and staff, researchers, and research staff.

| Module Title | Recommended Use | ID (Language) |
|--------------------------------|-----------------|-----------------|
| Post-Approval Monitoring (PAM) | Required | 16416 (English) |

Post-Approval Monitoring (PAM)

This module provides detailed information on the regulations and guidelines pertaining to PAM programs, actions that constitute PAM, and the dos and don'ts of conducting a PAM visit.

Additional Courses

Institutional Official: Animal Care and Use Course

The course below is intended for individuals who are, or will be, acting as the institutional official (IO) responsible for academic and commercial animal care and use programs. It provides an introduction to the role and responsibilities of the IO as guided by federal regulations, as well as the various institutional policies and procedures as set forth by the organization in which the animal care and use program is situated. The course describes the role of the IO as an organizational leader and as a critical representative of the organization's animal research program. For recommendations on how to use this course, see the [Using CITI Program](#)

Content: Animal Care and Use (ACU) document.

| Module Title | Recommended Use | ID (Language) |
|--|-----------------|-----------------|
| Introduction to the Challenges of Being an IO: Animal Care and Use Program | Required | 16644 (English) |
| What the IO is Required to Know | Required | 16645 (English) |
| IO Responsibilities | Required | 16646 (English) |
| What Works: A Word from Experienced IOs | Required | 16647 (English) |

Introduction to the Challenges of Being an IO: Animal Care and Use Program

This module describes the role and responsibilities of the IO as guided by federal regulations, as well as the various institutional policies and procedures as set forth by the institution in which the animal care and use program is situated.

What the IO is Required to Know

This module provides an overview of the federal regulations relevant for animal care and use in research settings, and the components of an animal care and use program.

IO Responsibilities

This module focuses on the role of the IO and what federal regulators expect to be within the scope of that role. This module will also discuss ways the IO can promote an organizational culture of respect, commitment, and compliance. The required communications with the federal officials are also examined.

What Works: A Word from Experienced IOs

This module focuses on the IO as the designated leader of the animal care and use program. It reviews some leadership techniques that have been successfully used by others.

IACUC Chair Course

The course below is intended for individuals who are, or will be, acting as an Institutional Animal Care and Use Committee (IACUC) Chair member. It provides an introduction to the roles and responsibilities of the IACUC Chair as guided by Animal Welfare Regulations (AWR) and Public Health Service Policy (PHS Policy). The course also addresses the IACUC Chair's role responsibilities IACUC meetings, as well as additional duties outside of IACUC meetings. For recommendations on how to use this course, see the [Using CITI Program Content: Animal Care and Use \(ACU\) document](#).

| Module Title | Recommended Use | ID (Language) |
|--|-----------------|-----------------|
| Roles and Responsibilities of an IACUC Chair | Required | 16954 (English) |
| The IACUC Chair's Meeting Responsibilities | Required | 16955 (English) |
| The IACUC Chair's Role Outside the IACUC Meeting | Required | 16956 (English) |

Roles and Responsibilities of an IACUC Chair

This module outlines the qualifications and important IACUC chair roles, and provides some aid in carrying out the duties of an IACUC Chair, according to ethical principles, regulations, and policies and procedures, as well as describes the ideal relationship between the IACUC administrator, IO, and Institutional Biosafety Committee (IBC).

The IACUC Chair's Meeting Responsibilities

This module provides information on preparing for an IACUC meeting, guidelines for running such meetings, and responsibilities after a meeting.

The IACUC Chair's Role Outside the IACUC Meeting

This module discusses a number of possible roles for an IACUC chair, describing additional duties outside of meetings, delegation of duties, dealing with animal welfare issues and non-compliance, and training and education.

Refresher Courses

These refresher courses should be completed after their corresponding basic level course within a time period designated by the organization (for example, three years after completing the basic course). For recommendations on how to use a basic ACU course, see the [Using CITI Program Content: Animal Care and Use \(ACU\)](#) document.

Working with the IACUC – Refresher

Learners who have completed the *Working with the IACUC* course and whose organization requires a refresher are intended to use this course. It offers reviews of many of the topics covered in the basic course, but adds additional depth, expanding on points that are often sources of concerns and questions by Institutional Animal Care and Use Committees (IACUCs) and animal users.

| Module Title | Recommended Use | ID (Language) |
|---|-----------------|-----------------|
| Introduction to Working with the IACUC – Refresher Course | Required | 13780 (English) |
| The Regulators | Required | 13781 (English) |
| Responsibility | Required | 13782 (English) |
| Justifying Animal Use | Required | 13783 (English) |
| Consider Alternatives | Required | 13784 (English) |
| Duplication | Required | 13785 (English) |
| Training | Required | 13786 (English) |
| Housing and Husbandry | Required | 13787 (English) |
| Monitoring and Controlling Pain and Distress | Required | 13788 (English) |
| Surgery | Required | 13789 (English) |
| Post-Procedure Monitoring and Care | Required | 13790 (English) |
| Endpoints | Required | 13791 (English) |
| Euthanasia | Required | 13792 (English) |
| Occupational Health and Safety | Required | 13793 (English) |
| Final Words | Required | 13846 (English) |
| References | Required | 13794 (English) |

Introduction to Working with the IACUC - Refresher Course

This module serves as an introduction to the *Working with the IACUC – Refresher* course. It discusses its goal to review and reinforce important concepts in the humane use of animals in support of scientific advancement.

The Regulators

This module reviews the principal federal rules affecting animal use in research: **The Animal Welfare Act of 1966** (as amended in 1970, 1976, 1985, 1990 and 2002) and the **Health Research Extension Act of 1985**.

Responsibility

The module reviews the responsibilities for humane care and use of research animals to the institution that hosts the animal use activities. It also reviews the responsibilities and make up of an IACUC.

Justifying Animal Use

This module reviews the protocol that must be presented when proposing work with animal subjects. It is important to note that animals should be used only for work that is likely to benefit human or animal health, or the good of society, or add to important scientific knowledge.

Consider Alternatives

This module reviews the requirements for investigators to provide written assurance that alternatives are not available for proposed procedures in animals that are likely to cause pain and/or distress.

Duplication

This module reviews the idea that each investigator is required to provide a statement to the IACUC that the proposed work does not needlessly duplicate previous work.

Training

This module reviews the need for proper training of investigators before performing procedures pertaining to animals.

Housing and Husbandry

This module reviews the need for an established program at your institution for the housing and husbandry of all the species that are held there. It reviews all elements of housing and husbandry including the proper types of housing, food, cleanliness, environment, and safety. It also discusses the humane considerations that are involved with restrained animals.

Monitoring and Controlling Pain and Distress

This module reviews the monitoring and controlling of pain or discomfort in animals.

Surgery

This module reviews surgery in animal experiments, a prominent area of the IACUC oversight, which is of particular interest to the investigator due to its potential to cause pain and distress for the animal.

Post-procedure Monitoring and Care

This module reviews the good practice requirements for monitoring the well-being of an animal until it is fully recovered from surgery.

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Endpoints

This module reviews what to consider before ending an animal's involvement in a study. This is an important decision, as animals can't ask to be released from a research study when they have had enough.

Euthanasia

This module reviews the matters that should be taken into account when planning for the euthanasia of an animal.

Occupational Health and Safety

This module reviews the different elements of occupational health and safety that should be taken into consideration while working with animals.

Final Words

This module serves as a review to the Introduction to Working with the IACUC – Refresher course.

References

This module presents the references that were used in the *Introduction to Working with the IACUC – Refresher* course.

IACUC Member Refresher Case Studies

Learners who have completed the *Essentials for IACUC Members* course and whose organization requires a refresher are intended to use this course. The case studies present learners with various scenarios depicting "real-life" problems encountered by IACUCs, and they typically present both sides of contentious issues. Learners are then asked to select actions that the IACUC or principal investigator could take. This new approach to refresher training is intended to form an interesting re-encounter of issues for the learner. A suggested refresher course consists of three or more completed case studies. The case studies can also be used during IACUC meetings for supplemental training purposes.

| Module Title | Recommended Use | ID (Language) |
|---|-----------------|-----------------|
| ACU Program Basics | | |
| IACUC Composition | Elective | 15508 (English) |
| Qualification of Personnel Managing Analgesics | Elective | 15518 (English) |
| Occupational Health | Elective | 15526 (English) |
| Managing SOPs | Elective | 15530 (English) |
| Disaster Planning | Elective | 15523 (English) |
| USDA Pain Classification | Elective | 15519 (English) |
| The Institutional Official's (IO's) Role And Authority Limits | Elective | 17002 (English) |
| Protocol Review Issues | | |
| Protocol Amendments and Modifications | Elective | 15516 (English) |
| Grant Reviews | Elective | 15520 (English) |
| Inter-related Protocols | Elective | 15524 (English) |
| Protocol Approval Expiration | Elective | 15528 (English) |
| Use of Ad Hoc Consultants in Protocol Review/Confidentiality Issues | Elective | 15529 (English) |
| Using the VVC Process for Review of Select Significant Changes – "XYZ Therapeutics" | Elective | 16997 (English) |
| Using the VVC Process for Review of Select Significant Changes – "Great Eastern University" | Elective | 16998 (English) |
| Reporting and Euthanasia with Wildlife | Elective | 16999 (English) |
| Measuring Pain | Elective | 17001 (English) |
| Establishing a New Animal Model | Elective | 17003 (English) |
| Rationale for New Model Development | Elective | 17004 (English) |

| Investigating Noncompliance | | |
|--|----------|-----------------|
| Tackling Investigator Noncompliance | Elective | 15514 (English) |
| Investigating Allegations of Noncompliance, Whistle-Blower Protection, and Due Process | Elective | 15522 (English) |
| Investigations of Noncompliance | Elective | 14948 (English) |
| Unapproved Intervention | Elective | 15527 (English) |
| No Harm, No Foul | Elective | 17058 (English) |
| Shared Institutional Goals of Animal Health & Welfare | Elective | 17059 (English) |
| Postapproval Management | | |
| Semiannual Facility Inspections | Elective | 15515 (English) |
| Managing Animals after Protocol Expiration | Elective | 15517 (English) |
| Lab Inspection/Compliance | Elective | 15521 (English) |
| Trust, But Verity | Elective | 17000 (English) |

ACU PROGRAM BASICS

IACUC Composition

This case study pertains to the requirements and qualifications of a duly constituted IACUC.

Qualification of Personnel Managing Analgesics

This case study pertains to an IACUC's evaluation of training methods to assure that persons working with animals are sufficiently trained and qualified prior to working with animals.

Occupational Health

This case study discusses the requirements for an occupational health and safety program.

Managing SOPs

This case study discusses the appropriate management of standard operating procedures (SOPs).

Disaster Planning

This case study involves the development and maintenance of an animal facility disaster plan.

USDA Pain Classification

This case study discusses the application of the USDA pain classifications.

The Institutional Official's (IO's) Role and Authority Limits

This case study discusses the role and authority of the IO with regard to animal research oversight.

PROTOCOL REVIEW ISSUES

Protocol Amendments and Modifications

This case study discusses differences between protocol amendments, modifications, and veterinary intervention for animal welfare.

(continued)

Grant Reviews

This case study discusses grant review issues.

Inter-related Protocols

This case study involves review of potential noncompliance, and Office of Laboratory Animal Welfare (OLAW) and Association for Assessment and Accreditation of Laboratory Animal Care International (AAALAC) reporting requirements.

Protocol Approval Expiration

This case study discusses the requirement for regular IACUC review of animal activities and possible options and consequences in the event of a lapse in approval.

Use of Ad Hoc Consultants in Protocol Review/Confidentiality Issues

This case study discusses the appropriate use of ad hoc consultants in IACUC review of animal activities.

Using the VVC Process for Review of Select Significant Changes – “Great Eastern University”

This case study discusses the appropriate use of the Veterinarian Verification and Consultation (VVC) process in the review of significant changes at “Great Eastern University.”

Using the VVC Process for Review of Select Significant Changes – “XYZ Therapeutics”

This case study discusses the appropriate use of the Veterinarian Verification and Consultation (VVC) process in the review of significant changes at “XYZ Therapeutics.”

Reporting and Euthanasia with Wildlife

This case study discusses IACUC review and approval of wildlife research and appropriate methods of euthanasia in the field. It also discusses reporting requirements for wildlife research.

Measuring Pain

This case study discusses IACUC review of pain research and sex bias in animal models.

Establishing a New Animal Model

This case study discusses IACUC review and training requirements for the use of new animal research models to study human disease.

Rationale for New Model Development

This case study discusses IACUC review and appropriate justification for the use of new animal research models.

Using the VVC Process for Review of Select Significant Changes – “Great Eastern University”

This case study discusses the appropriate use of the Veterinarian Verification and Consultation (VVC) process in the review of significant changes at “Great Eastern University.”

INVESTIGATING NONCOMPLIANCE

Tackling Investigator Noncompliance

This case study involves IACUC investigation into unapproved activities.

(continued)

Investigating Allegations of Noncompliance, Whistle-Blower Protection, and Due Process

This case study involves IACUC review of an allegation of noncompliance, whistle-blower protections, and appropriate due-process.

Investigations of Noncompliance

This case study involves IACUC review of an allegation of noncompliance and appropriate due-process.

Unapproved Intervention

This case study discusses the potential consequences of conducting unapproved procedures in animals.

No Harm, No Foul

This case study discusses IACUC review of noncompliance and protocol review.

Shared Institutional Goals of Animal Health & Welfare

This case study discusses appropriate IACUC processes for review and reporting of potential noncompliance.

POSTAPPROVAL MANAGEMENT

Semiannual Facility Inspections

This case study discusses the regulatory requirements for semi-annual facility inspections.

Managing Animals after Protocol Expiration

This case study discusses IACUC timelines for review of animal activities and the proper management of animals following a lapse in IACUC approval.

Lab Inspection/Compliance

This case study discusses lab inspection and compliance issues.

Animal-Specific Courses

The animal-specific courses are intended to provide an introduction to the regulatory mandates and biological peculiarities of individual species. These courses are meant for IACUC members, researchers, research assistants, animal workers, and staff. It is typically recommended that learners complete the *Working with the IACUC* course prior to taking animal-specific courses. For recommendations on how to use the animal-specific courses, see the [Using CITI Program Content: Animal Care and Use \(ACU\)](#) document.

Working with Amphibians in Research Settings

This course addresses issues in the use of amphibians in research.

| Module Title | Recommended Use | ID (Language) |
|--|-----------------|----------------|
| Introduction to Working with Amphibians in Research Settings | Required | 2077 (English) |
| Taxonomy, Research Mandates, and Occupational Health Issues | Required | 2078 (English) |
| Alternatives Search, Housing, Source, and Acclimation and Quarantine | Required | 2081 (English) |
| Biology, Pain and Distress, Handling, and Pain Relief | Required | 2085 (English) |
| Surgery, Supportive Care and Monitoring, Euthanasia, and References | Required | 2089 (English) |

Introduction to Working with Amphibians in Research Settings

This module serves as an introduction to the *Working with Amphibians in Research Settings* course. It discusses the goal and objectives that this course seeks to achieve.

Taxonomy, Research Mandates, and Occupational Health Issues

This module discusses the taxonomy of the class Amphibia. It also presents the research mandates and occupational health issues that relate to amphibians.

Alternatives Search, Housing, Source, and Acclimation and Quarantine

This module discusses the requirements for investigators to provide written assurance that alternatives are not available for proposed

procedures in animals that are likely to cause pain and/or distress. It also presents the best practices for housing, sourcing, acclimation, quarantine, and conditioning of amphibians.

Biology, Pain and Distress, Handling, and Pain Relief

This module discusses the important and interesting biological features of amphibians. It also analyzes the detection of pain and distress, proper handling procedures, and dose rates for the common drugs and drug regimens.

Surgery, Supportive Care and Monitoring, Euthanasia, and References

This module discusses the appropriate surgical techniques for amphibians, supportive care and monitoring, and euthanasia. It also presents the references that were used for the *Working with Amphibians in Research Settings* course.

Working with Cats in Research Settings

This course addresses issues in the use of cats in research.

| Module Title | Recommended Use | ID (Language) |
|--|-----------------|----------------|
| Introduction to Working with Cats in Research Settings | Required | 1883 (English) |
| Research Mandates and Occupational Health Issues | Required | 1884 (English) |
| Alternatives Search, Humane Standards, Housing, Source, and Acclimation and Quarantine | Required | 1886 (English) |
| Detecting Pain and Distress, and Biological Features | Required | 1891 (English) |
| Injections, Blood Collection, and Pain Relief | Required | 1893 (English) |
| Surgery, Supportive Care and Monitoring, Euthanasia, and References | Required | 1895 (English) |

Introduction to Working with Cats in Research Settings

This module serves as an introduction to the *Working with Cats in Research Settings* course. It discusses the goal and objectives that this course seeks to achieve.

Research Mandates and Occupational Health Issues

This module discusses the research mandates and occupational health issues that are presented when working with cats.

Alternatives Search, Humane Standards, Housing, Source, and Acclimation and Quarantine

This module discusses the requirements for investigators to provide written assurance that alternatives are not available for proposed procedures in cats that are likely to cause pain and/or distress. It also presents the best practices for humane standards, housing, sourcing, acclimation, quarantine, and conditioning of cats.

Detecting Pain and Distress, and Biological Features

This module discusses the detection of pain and distress in cats, both physical and behavioral. It also presents the important and notable biological features of cats.

Injections, Blood Collection, and Pain Relief

This module discusses the volume recommendations and proper procedure for acute intravenous fluid administration and blood collection in cats. It also presents the dose rates for the common drugs and drug regimens.

Surgery, Supportive Care and Monitoring, Euthanasia, and References

This module discusses the appropriate surgical techniques, supportive care and monitoring, and euthanasia for cats. It also presents the references that were used for the *Working with Cats in Research Settings* course.

Working with Cattle in Agricultural Research Settings

This course addresses issues in the use of cattle in agricultural research settings.

| Module Title | Recommended Use | ID (Language) |
|---|-----------------|-----------------|
| Introduction to Working with Cattle in Agricultural Research Settings | Required | 16939 (English) |
| Research Mandates and Animal Care | Required | 16940 (English) |
| Biological Features | Required | 16941 (English) |
| Veterinary Care - Part I | Required | 16942 (English) |
| Veterinary Care – Part II | Required | 16980 (English) |
| Occupational Health Hazards and Zoonoses | Required | 16943 (English) |

Introduction to Working with Cattle in Agricultural Research Settings

This module serves as an introduction to the *Working with Cattle in Agricultural Research Settings* course. It covers basic information, concerns, standards, and hazards related to working with cattle.

Research Mandates and Animal Care

This module discusses information about the regulatory mandates related to the use of cattle in research. It also provides an overview of the humane care of cattle, including environmental and housing requirements.

Behavioral Features

This module provides information on the unique biological features of cattle. It also describes the different types of cattle and their life cycles.

Veterinary Care – Part I

This module describes the basic veterinary care and standard procedures relevant to the use of cattle. Topics include basic anatomy, herd management, injury detection and management, and animal identification.

Veterinary Care – Part II

This module describes the basic veterinary care and standard procedures relevant to the use of cattle. Topics include disease detection, digestive ailments, hoof care, and animal handling.

Occupational Health Hazards and Zoonoses

This module discusses the appropriate surgical techniques, supportive care and monitoring, and euthanasia for cats. It also presents the references that were used for the *Working with Cattle in Research Settings* course.

Working with Dogs in Research Settings

This course addresses issues in the use of dogs in research.

| Module Title | Recommended Use | ID (Language) |
|--|-----------------|----------------|
| Introduction to Working with Dogs in Research Settings | Required | 1899 (English) |
| Research Mandates and Occupational Health Issues | Required | 1900 (English) |
| Alternatives Search, Humane Standards, Housing, Source, and Acclimation and Quarantine | Required | 1902 (English) |
| Detecting Pain and Distress and Biological Features | Required | 1908 (English) |
| Injections, Blood Collection, and Pain Relief | Required | 1910 (English) |
| Surgery, Supportive Care and Monitoring, Euthanasia, and References | Required | 1912 (English) |

Introduction to Working with Dogs in Research Settings

This module serves as an introduction to the *Working with Dogs in Research Settings* course. It discusses the goal and objectives that this course seeks to achieve.

Research Mandates and Occupational Health Issues

This module discusses the research mandates and occupational health issues that are presented while working with dogs.

Alternatives Search, Humane Standards, Housing, Source, and Acclimation and Quarantine

This module discusses the requirements for investigators to provide written assurance that alternatives are not available for proposed procedures in dogs that are likely to cause pain and/or distress. It also presents the best practices for humane standards, housing, exercise requirements, sourcing, acclimation, quarantine, and conditioning of dogs.

Detecting Pain and Distress and Biological Features

This module discusses the detection of pain and distress in dogs, both physical and behavioral. It also presents the important and notable biological features of dogs.

Injections, Blood Collection, and Pain Relief

This module discusses the volume recommendations and proper procedure for acute intravenous fluid administration and blood collection in dogs. It also presents the dose rates for the common drugs and drug regimens.

Surgery, Supportive Care and Monitoring, Euthanasia, and References

This module discusses the appropriate surgical techniques, supportive care and monitoring, and euthanasia for dogs. It also presents the references that were used for the *Working with Dogs in Research Settings* course.

Working with Ferrets in Research Settings

This course addresses issues in the use of ferrets in research.

| Module Title | Recommended Use | ID (Language) |
|---|-----------------|-----------------|
| Working with Ferrets in Research Settings - Introduction | Required | 12244 (English) |
| Research Mandates and Occupational Health Issues | Required | 12413 (English) |
| Humane Standards | Required | 12414 (English) |
| Biology, Injections and Blood Collection and Detection of Pain and Distress | Required | 12415 (English) |
| Surgery, Supportive Care and Monitoring, Euthanasia | Required | 12416 (English) |
| References | Required | 12417 (English) |

Working with Ferrets in Research Settings - Introduction

This module serves as an introduction to the *Working with Ferrets in Research Settings* course. It discusses the goal and objectives that this course seeks to achieve.

Research Mandates and Occupational Health Issues

This module discusses the research mandates and occupational health issues that are presented while working with ferrets.

Humane Standards

This module discusses the standards for humane treatment of ferrets involved in a study.

Biology, Injections and Blood Collection and Detection of Pain and Distress

This module discusses biological features, dietary needs, breeding, immunization and health treatments, common diseases, and injection and blood collection for ferrets.

Surgery, Supportive Care and Monitoring, Euthanasia

This module discusses surgery, support care and monitoring, and euthanasia for ferrets.

References

This module lists the references for the *Working with Ferrets in Research Settings* course.

Working with Fish in Research Settings

This course addresses issues in the use of fish in research.

| Module Title | Recommended Use | ID (Language) |
|--|-----------------|-----------------|
| Introduction, Taxonomy, Research Mandates, and Occupational Health | Required | 15315 (English) |
| Alternatives, Humane Standards, Housing, Source, and Acclimation and Quarantine | Required | 15316 (English) |
| Biological Features | Required | 15317 (English) |
| Recognizing Pain and Distress, Collection, Identification and Routes of Administration | Required | 15318 (English) |
| Anesthesia, Analgesia, Surgery, and Postoperative Care | Required | 15319 (English) |
| Euthanasia | Required | 15320 (English) |

Introduction, Taxonomy, Research Mandates, and Occupational Health

This module describes the taxonomy and classification of fish. It also covers the federal mandates that regulate the use of fish in research, the use of threatened or endangered species, the potential hazards that come with handling fish and the need for an occupational health and safety program.

Alternatives Search, Humane Standards, Housing, Source, and Acclimation and Quarantine

This module states the purpose of the federally mandated 'alternatives search' in an animal protocol as well as the information that should be provided after the 'search' has been conducted. It also details the housing requirements, sources for collecting fish, collection methods, proper handling procedures, and acclimation, quarantine, and conditioning.

Biological Features

This module highlights the biological features of fish that have contributed to their increasing popularity as models in biomedical research.

Recognizing Pain and Distress, Collection, Identification and Routes of Administration

This module describes collection and identification practices for fish. It also discusses how to detect pain and distress in fish as well as the procedures that may be used for IV injections or blood withdrawal.

Anesthesia, Analgesia, Surgery, and Postoperative Care

This module covers the types of anesthetic and analgesic agents used in fish and the indications for their use. It also discusses the factors that should be taken into consideration when performing surgery on fish.

Euthanasia

This module presents the acceptable methods of euthanasia in fish and for their disposal.

Working with Gerbils in Research Settings

This course addresses issues in the use of amphibians in research.

| Module Title | Recommended Use | ID (Language) |
|--|-----------------|----------------|
| Introduction to Working with Gerbils in Research Settings | Required | 2014 (English) |
| Taxonomy, Research Mandates and Occupational Health Issues | Required | 2015 (English) |
| Alternatives Search, Humane Standards, Housing, Acclimation and Quarantine, and Detection of Pain and Distress | Required | 2001 (English) |
| Strains, Biology, Injections and Blood Collection, and Pain Relief | Required | 2006 (English) |
| Surgery, Supportive Care and Monitoring, Euthanasia, and References | Required | 2010 (English) |

Introduction to Working with Gerbils in Research Settings

This module serves as an introduction to the *Working with Gerbils in Research Settings* course. It discusses the goal and objectives that this course seeks to achieve.

Taxonomy, Research Mandates, and Occupational Health Issues

This module discusses the research mandates and occupational health issues that are presented when working with gerbils.

Alternatives Search, Housing, Source, and Acclimation and Quarantine

This module discusses the requirements for investigators to provide written assurance that alternatives are not available for proposed procedures in gerbils that are likely to cause pain and/or distress. It also presents the best practices for humane standards, housing, sourcing, acclimation, quarantine, and detecting pain and/or distress of gerbils.

Strains, Biology, Injections and Blood Collection, and Pain Relief

This module discusses gerbil strains and species and each important anatomical and physiological feature. It also presents the volume recommendations and proper procedure for acute intravenous fluid administration and blood collection in gerbils as well as the dose rates for the common drugs and drug regimens.

Surgery, Supportive Care and Monitoring, Euthanasia, and References

This module discusses the appropriate surgical techniques, supportive care and monitoring, and euthanasia for gerbils. It also presents the references that were used for the *Working with Gerbils in Research Settings* course.

Working with Guinea Pigs in Research Settings

This course addresses issues in the use of guinea pigs in research.

| Module Title | Recommended Use | ID (Language) |
|--|-----------------|----------------|
| Introduction to Working with Guinea Pigs in Research Settings | Required | 1951 (English) |
| Taxonomy, Research Mandates and Occupational Health Issues | Required | 1952 (English) |
| Alternatives Search, Humane Standards, Housing, Acclimation and Quarantine, and Detection of Pain and Distress | Required | 1954 (English) |
| Genetics, Biology, Injections and Blood Collection, Antibody Production, and Pain Relief | Required | 1959 (English) |
| Surgery, Supportive Care and Monitoring, Euthanasia, and References | Required | 1964 (English) |

Introduction to Working with Guinea Pigs in Research Settings

This module serves as an introduction to the *Working with Guinea Pigs in Research Settings* course. It discusses the goal and objectives that this course seeks to achieve.

Taxonomy, Research Mandates, and Occupational Health Issues

This module discusses the research mandates and occupational health issues that are presented when working with guinea pigs.

Alternatives Search, Humane Standards, Acclimation and Quarantine, Housing, and Detection of Pain and Distress

This module discusses the requirements for investigators to provide written assurance that alternatives are not available for proposed procedures in guinea pigs that are likely to cause pain and/or distress. It also presents the best practices for humane standards, housing, acclimation, quarantine, and detecting pain and/or distress of guinea pigs.

Genetics, Biology, Injections and Blood Collection, Antibody Production, and Pain Relief

This module discusses guinea pig strains and species, and each important biological feature that they possess. It also presents the volume recommendations and proper procedure for acute intravenous fluid administration and blood collection in guinea pigs as well as the dose rates for the common drugs and drug regimens.

Surgery, Supportive Care and Monitoring, Euthanasia, and References

This module discusses the appropriate surgical techniques, supportive care and monitoring, and euthanasia for guinea pigs. It also presents the references that were used for the *Working with Guinea Pigs in Research Settings* course.

Working with Hamsters in Research Settings

This course addresses issues in the use of hamsters in research.

| Module Title | Recommended Use | ID (Language) |
|---|-----------------|----------------|
| Introduction to Working with Hamsters in Research Settings | Required | 1984 (English) |
| Research Mandates and Occupational Health Issues | Required | 1985 (English) |
| Alternatives Search, Humane Standards, Housing, Acclimation and Quarantine, Detecting Pain and Distress | Required | 1987 (English) |
| Species/Strains | Required | 1992 (English) |
| Surgery, Supportive Care and Monitoring, Euthanasia, and References | Required | 1996 (English) |

Introduction to Working with Hamsters in Research Settings

This module serves as an introduction to the *Working with Hamsters in Research Settings* course. It discusses the goal and objectives that this course seeks to achieve.

Research Mandates, and Occupational Health Issues

This module discusses the research mandates and occupational health issues that are presented when working with hamsters.

Alternatives Search, Humane Standards, Housing, Acclimation and Quarantine, Detecting Pain and Distress

This module discusses the requirements for investigators to provide written assurance that alternatives are not available for proposed procedures in hamsters that are likely to cause pain and/or distress. It also presents the best practices for humane standards, housing, acclimation, quarantine, and detecting pain and/or distress of hamsters.

Species/Strains

This module discusses hamster strains and species, and each important biological feature that they possess. It also presents the volume recommendations and proper procedure for acute intravenous fluid administration and blood collection in hamsters as well as the dose rates for the common drugs and drug regimens.

Surgery, Supportive Care and Monitoring, Euthanasia, and References

This module discusses the appropriate surgical techniques, supportive care and monitoring, and euthanasia for hamsters. It also presents the references that were used for the *Working with Hamsters in Research Settings* course.

Working with Horses in Agricultural Research Settings

This course addresses issues in the use of horses in research.

| Module Title | Recommended Use | ID (Language) |
|---|-----------------|-----------------|
| Introduction to Working with Horses in an Agricultural Research Setting | Required | 16660 (English) |
| Research Mandates | Required | 16661 (English) |
| Biological Features and Behavioral Characteristics | Required | 16662 (English) |
| Veterinary Care | Required | 16663 (English) |
| Occupational Health Hazards and Zoonoses | Required | 16664 (English) |
| Euthanasia | Required | 16665 (English) |

Introduction to Working with Horses in Agricultural Research Settings

This module serves as an introduction to the *Working with Horses in an Agricultural Research Setting* course. It discusses the goal and objectives that this course seeks to achieve.

Research Mandates

This module discusses the research mandates and occupational health issues that are presented when working with horses in an agricultural research setting.

Biological Features and Behavioral Characteristics

This module describes basic biological features and behavioral characteristics of horses.

Veterinary Care

This module discusses basic routine care and health management. It also describes signs of good health, and abnormal behavioral. The module also presents common methods of confinement and restraint, blood collection, and drug administration.

Occupational Health Hazards and Zoonoses

This module discusses the occupational health hazards associated with working with horses, as well as general auxiliary hazards pertaining to working in an agricultural facility. It also discusses zoonotic diseases that can be passed from horses to people.

Euthanasia

This module discusses the appropriate methods of euthanasia for horses. It also presents the references that were used for the *Working with Horses in Agricultural Settings* course.

Working with Mice in Research Settings

This course addresses issues in the use of mice in research.

| Module Title | Recommended Use | ID (Language) |
|--|-----------------|----------------|
| Introduction to Working with Mice in Research Settings | Required | 1933 (English) |
| Research Mandates and Occupational Health Issues | Required | 1934 (English) |
| Alternatives Search, Humane Standards, Housing, Source, and Acclimation and Quarantine | Required | 1936 (English) |
| Detecting Pain and Distress, Genetics, and Biological Features | Required | 1940 (English) |
| Injections, Blood Collection, and Antibody Production | Required | 1943 (English) |
| Surgery, Supportive Care and Monitoring, Euthanasia, and References | Required | 1946 (English) |

Introduction to Working with Mice in Research Settings

This module serves as an introduction to the *Working with Mice in Research Settings* course. It discusses the goal and objectives that this course seeks to achieve.

Research Mandates and Occupational Health Issues

This module discusses the research mandates and occupational health issues that are presented when working with mice. It also reviews occupational health plans for individuals working with laboratory animals.

Alternatives Search, Humane Standards, Housing, Source, and Acclimation and Quarantine

This module discusses the requirements for investigators to provide written assurance that alternatives are not available for proposed procedures in mice that are likely to cause pain and/or distress. Also includes humane standards, housing, acclimation, and quarantine.

Detecting Pain and Distress and Biological Features

This module discusses the detection of pain and distress in mice during research testing. It also presents mice strains and species, and each important biological feature that they possess.

Injections, Blood Collection, and Pain Relief

This module presents the volume recommendations and proper procedure for acute intravenous fluid administration and blood collection in mice as well as the dose rates for the common drugs and drug regimens. It also discusses antibody production for research testing.

Surgery, Supportive Care and Monitoring, Euthanasia, and References

This module discusses the appropriate surgical techniques, supportive care and monitoring, and euthanasia for mice. It also presents the references that were used for the *Working with Mice in Research Settings* course.

Working with Non-Human Primates in Research Settings

This course addresses issues in the use of non-human primates in research.

| Module Title | Recommended Use | ID (Language) |
|--|-----------------|----------------|
| Introduction to Working With Non-Human Primates in Research Settings | Required | 2032 (English) |
| Research Mandates and Occupational Health Issues | Required | 2033 (English) |
| Alternatives Search, Humane Standards, Housing, Source, and Acclimation and Quarantine | Required | 2035 (English) |
| Detecting Pain and Distress, and Biological Features | Required | 2040 (English) |
| Injections, Blood Collection, and Pain Relief | Required | 2042 (English) |
| Surgery, Supportive Care and Monitoring, Euthanasia, and References | Required | 2044 (English) |

Introduction to Working With Non-Human Primates in Research Settings

This module serves as an introduction to the *Working with Non-Human Primates in Research Settings* course. It discusses the goal and objectives that this course seeks to achieve.

Research Mandates and Occupational Health Issues

This module discusses the research mandates and occupational health issues that are presented when working with non-human primates.

Alternatives Search, Humane Standards, Housing, Source, and Acclimation and Quarantine

This module discusses the requirements for investigators to provide written assurance that alternatives are not available for proposed procedures in non-human primates that are likely to cause pain and/or distress. It also presents the best practices for the source of non-human primates, acclimation, quarantine, and conditioning.

Detecting Pain and Distress and Biological Features

This module discusses the detection of pain and distress in non-human primates during research testing. It also presents the important biological features that non-human primates possess.

Injections, Blood Collection, and Pain Relief

This module discusses the proper techniques for handling, collecting blood samples, and providing pain relief to non-human primates.

Surgery, Supportive Care and Monitoring, Euthanasia, and References

This module discusses the appropriate surgical techniques, supportive care and monitoring, and euthanasia for non-human primates. It also presents the references that were used for the *Working with Non-Human Primates in Research Settings* course.

Working with Rabbits in Research Settings

This course addresses issues in the use of rabbits in research.

| Module Title | Recommended Use | ID (Language) |
|--|-----------------|----------------|
| Introduction to Working with Rabbits in Research Settings | Required | 1968 (English) |
| Research Mandates and Occupational Health Issues | Required | 1969 (English) |
| Alternatives Search, Humane Standards, Housing, Source, and Acclimation and Quarantine | Required | 1971 (English) |
| Detecting Pain and Distress, Genetics, and Biological Features | Required | 1975 (English) |
| Injections, Blood Collection, Antibody Production, and Pain Relief | Required | 1977 (English) |
| Surgery, Supportive Care and Monitoring, Euthanasia, and References | Required | 1980 (English) |

Introduction to Working with Rabbits in Research Settings

This module serves as an introduction to the *Working with Rabbits in Research Settings* course. It discusses the goal and objectives that this course seeks to achieve.

Research Mandates and Occupational Health Issues

This module discusses the research mandates and occupational health issues that are presented when working with rabbits.

Alternatives Search, Humane Standards, Housing, Source, and Acclimation and Quarantine

This module discusses the requirements for investigators to provide written assurance that alternatives are not available for proposed procedures in rabbits that are likely to cause pain and/or distress. It also presents the best practices for the humane treatment of rabbits as well as allowing them to acclimate with their environment.

Detecting Pain and Distress, Genetics, and Biological Features

This module discusses the detection of pain and distress in rabbits during research testing. It also presents the important biological features that rabbits possess.

Injections, Blood Collection, Antibody Production, and Pain Relief

This module presents the volume recommendations and proper procedure for acute intravenous fluid administration and blood collection in rabbits as well as the dose rates for the common drugs and drug regimens. It also discusses antibody production for research testing.

Surgery, Supportive Care and Monitoring, Euthanasia, and References

This module discusses the appropriate surgical techniques, supportive care and monitoring, and euthanasia for rabbits. It also presents the references that were used for the *Working with Rabbits in Research Settings* course.

Working with Rats in Research Settings

This course addresses issues in the use of rats in research.

| Module Title | Recommended Use | ID (Language) |
|--|-----------------|----------------|
| Introduction to Working with Rats in Research Settings | Required | 1968 (English) |
| Research Mandates and Occupational Health Issues | Required | 1969 (English) |
| Alternatives Search, Humane Standards, Housing, Source, and Acclimation and Quarantine | Required | 1971 (English) |
| Detecting Pain and Distress, Genetics, and Biological Features | Required | 1975 (English) |
| Injections, Blood Collection, Antibody Production, and Pain Relief | Required | 1977 (English) |
| Surgery, Supportive Care and Monitoring, Euthanasia, and References | Required | 1980 (English) |

Introduction to Working with Rabbits in Research Settings

This module serves as an introduction to the *Working with Rats in Research Settings* course. It discusses the goal and objectives that this course seeks to achieve.

Research Mandates and Occupational Health Issues

This module discusses the research mandates and occupational health issues that are presented when working with rats.

Alternatives Search, Humane Standards, Housing, Source, and Acclimation and Quarantine

This module discusses the requirements for investigators to provide written assurance that alternatives are not available for proposed procedures in rabbits that are likely to cause pain and/or distress. It also presents the best practices for the humane treatment of rats as well as allowing them to acclimate with their environment.

Detecting Pain and Distress, Genetics, and Biological Features

This module discusses the detection of pain and distress in rats during research testing. It also presents the important biological features that they possess.

Injections, Blood Collection, Antibody Production, and Pain Relief

This module presents the volume recommendations and proper procedure for acute intravenous fluid administration and blood collection in rats as well as the dose rates for the common drugs and drug regimens. It also discusses antibody production for research testing.

Surgery, Supportive Care and Monitoring, Euthanasia, and References

This module discusses the appropriate surgical techniques, supportive care and monitoring, and euthanasia for rats. It also presents the references that were used for the *Working with Rats in Research Settings* course.

Working with Reptiles in Research Settings

This course addresses issues in the use of reptiles in research.

| Module Title | Recommended Use | ID (Language) |
|--|-----------------|-----------------|
| Introduction to Working with Reptiles in Research Settings | Required | 16787 (English) |
| Background, Research Mandates, Zoonotic Diseases, and Occupational Health Considerations | Required | 16788 (English) |
| Humane Standards, Housing, Procurement, and Quarantine | Required | 16789 (English) |
| Biological and Behavioral Features | Required | 16790 (English) |
| Detecting Pain and Distress, Capture, and Handling | Required | 16791 (English) |
| Analgesics, Sedation, Anesthesia, Surgery, and Euthanasia | Required | 16792 (English) |

Introduction to Working with Reptiles in Research Settings

This module serves as an introduction to the *Working with Reptiles in Research Settings* course. It discusses the goal and objectives that this course seeks to achieve.

Background, Research Mandates, Zoonotic Diseases, and Occupational Health Considerations

This module discusses the use of reptiles as a research model. It also presents the research mandates and occupational health issues that relate to reptiles.

Humane Standards, Housing, Procurement, and Quarantine

This module presents best practices for housing, procurement, and quarantine of reptiles.

Biological and Behavioral Features

This module discusses the important and interesting biological and behavioral features of reptiles.

Detecting Pain and Distress, Capture, and Handling

This module discusses the detection of pain and distress in reptiles. It also discusses proper capture and handling procedures.

Analgesics, Sedation, Anesthesia, Surgery, and Euthanasia

This module discusses appropriate analgesia and anesthesia in reptiles. It also covers appropriate surgical techniques and euthanasia.

Working with Sheep and Goats in Research Settings

This course addresses issues in the use of sheep and goats in research.

| Module Title | Recommended Use | ID (Language) |
|---|-----------------|-----------------|
| Introduction to Working with Sheep and Goats in Research Settings | Required | 17017 (English) |
| Research Mandates and Animal Care | Required | 17018 (English) |
| Biological Features and Characteristics | Required | 17019 (English) |
| Occupational Health Hazards and Zoonoses | Required | 17020 (English) |
| Husbandry and Veterinary Care | Required | 17021 (English) |
| Surgery, Anesthetics, Analgesics, and Euthanasia | Required | 17022 (English) |

Introduction to Working with Sheep and Goats in Research Settings

This module serves as an introduction to the *Working with Sheep and Goats in Research Settings* course. It discusses the goal and objectives that this course seeks to achieve.

Research Mandates and Animal Care

This module provides information about the regulatory mandates related to the use of sheep and goats in research.

Biological Features and Characteristics

This module provides information about the unique biological features and behavioral characteristics of sheep and goats.

Occupational Health Hazards and Zoonoses

This module addresses some of the most common hazards of working with sheep and goats. It also suggests techniques to help ensure that personnel avoid injury or disease.

Husbandry and Veterinary Care

This module describes the basic veterinary care and standard procedures relevant to the use of sheep or goats.

Surgery, Anesthetics, Analgesics, and Euthanasia

This module describes the pre-operative and surgical considerations for sheep and goats. It also includes information regarding the appropriate sedatives, anesthetics, analgesics, and methods of euthanasia to use in these species.

Working with Swine in Research Settings

This course addresses issues in the use of swine in research.

| Module Title | Recommended Use | ID (Language) |
|--|-----------------|----------------|
| Introduction to Working with Swine in Research Settings | Required | 2016 (English) |
| Research Mandates and Occupational Health Issues | Required | 2017 (English) |
| Alternatives Search, Humane Standards, Housing, Source, and Acclimation and Quarantine | Required | 2019 (English) |
| Detecting Pain and Distress, and Biological Features | Required | 2024 (English) |
| Injections, Blood Collection, and Pain Relief | Required | 2026 (English) |
| Surgery, Supportive Care and Monitoring, Euthanasia, and References | Required | 2028 (English) |

Introduction to Working with Swine in Research Settings

This module serves as an introduction to the *Working with Swine in Research Settings* course. It discusses the goal and objectives that this course seeks to achieve.

Research Mandates and Occupational Health Issues

This module discusses the research mandates and occupational health issues that are presented when working with swine.

Alternatives Search, Humane Standards, Housing, Source, and Acclimation and Quarantine

This module discusses the requirements for investigators to provide written assurance that alternatives are not available for proposed procedures in swine that are likely to cause pain and/or distress. It also presents the best practices for humane treatment, housing, sourcing, acclimation, quarantine, and conditioning.

Detecting Pain and Distress, and Biological Features

This module discusses the detection of pain and distress in swine during research testing. It each important biological feature that swine possess.

Injections, Blood Collection, and Pain Relief

This module presents the volume recommendations and proper procedure for acute intravenous fluid administration and blood collection in swine as well as the dose rates for the common drugs and drug regimens.

Surgery, Supportive Care and Monitoring, Euthanasia, and References

This module discusses the appropriate surgical techniques, supportive care and monitoring, and euthanasia for swine. It also presents the references that were used for the *Working with Swine in Research Settings* course.

Working with Zebrafish (*Danio rerio*) in Research Settings

This course addresses issues in the use of zebrafish in research.

| Module Title | Recommended Use | ID (Language) |
|---|-----------------|-----------------|
| Introduction, Background, Research Mandates, Zoonotic Diseases and Occupational Health Considerations | Required | 16243 (English) |
| Humane Standards, Procurement and Quarantine, and Identification | Required | 16244 (English) |
| Husbandry, Microenvironment, Nutrition, and Animal Records | Required | 16245 (English) |
| Biological and Behavioral Features, the Zebrafish Genome, Reproduction and Development | Required | 16246 (English) |
| Recognizing Pain and Distress, Restraint, Anesthesia and Sedation, Surgery and Euthanasia | Required | 16247 (English) |

Introduction, Background, Research Mandates, Zoonotic Diseases and Occupational Health Considerations

The module provides an overview of zebrafish, and describes the advantages of using zebrafish as a research model. It also covers the federal mandates that regulate the use of zebrafish in research, the need for an occupational health and safety program, and the potential hazards that come with handling zebrafish.

Humane Standards, Procurement and Quarantine, and Identification

This module describes the need for humane standards in research. It also details the process for obtaining, transporting and quarantine of zebrafish.

Husbandry, Microenvironment, Nutrition, Biosecurity and Animal Records

This module describes the water treatment, conditioning and flow requirements for a zebrafish facility. The module also discusses primary enclosures, biosecurity, environmental

conditions, and nutritional needs. The module also discusses proper record keeping for animals and facilities.

Biological and Behavioral Features, the Zebrafish Genome, Reproduction and Development

This module details zebrafish anatomy, physiology and behavior. It also describes the zebrafish genome, and describes the stages of development. Reproduction, including breeding schemes and development are also described in this module.

Recognizing Pain and Distress, Restraint, Anesthesia and Sedation, Surgery and Euthanasia

This module describes how to detect pain and distress in zebrafish as well as the types of anesthetic and analgesic agents used in zebrafish and the indications for their use. It also discusses the factors that should be taken into consideration when performing surgery on zebrafish. This module also presents the acceptable methods of euthanasia in zebrafish and for their disposal.