



Guide for the Animal Care and Use Program

Mission Statement

The mission of the Institutional Animal Care and Use Committee (IACUC) at York College of Pennsylvania is to oversee the humane care of animals used for research and educational purposes. We are committed to ensuring that York College faculty and students have considered all relevant ethical and animal care issues when designing and conducting their research and course materials. Adhering to ethics for humane treatment of animals is not only important, it is also among the values that underlie excellent research and teaching. We guide faculty and students to consider the principles of reduction in the overall number of animals required to perform high quality research, replacement of animals with alternative models when possible, and refinement of studies to minimize distress and maximize welfare when conducting research using animals.

IACUC membership

The IACUC was appointed by the Dean of Academic Affairs in 2014 to review research and teaching proposals prior to those activities beginning and conduct evaluations of the institution's animal care and use program, which includes inspections of animal facilities.

The Institutional Animal Care and Use Committee (IACUC) is responsible for oversight of all animal care and use.

- Review/approval of animal care and use protocols and amendments
- Semiannual review/inspection of facilities and program
- Assurance that all personnel are adequately trained to perform work with animals
- Addressing concerns about animal care and use
- Authorization to suspend activities involving animals if non-compliance has occurred

Members of the IACUC must include:

- A scientist experienced in working with animals
- A non-scientist
- A member who has no affiliation with the institution
- The attending veterinarian

The IACUC reports to the Institutional Official designated by the college. Currently the Institutional Official (IO) is the Associate Dean of Academic Affairs.

Animal Research at York College

Due to our current level of federal funding and the species housed here, research at York College falls under the requirements of The Guide for the Care and Use of Laboratory Animals. In this document, this is known as “The Guide.”

The Guide for the Care and Use of Laboratory Animals. National Research Council of the National Academies; National Academies Press, Washington, DC. 2011.

The Guide includes:

- Standards for housing, veterinary care, experimental use
- IACUC procedures and requirements
- Standards for training

All animal research in the United States follows the **US Government Principles**, which are also supported by “The Guide.” Our IACUC is responsible for upholding these principles:

1. Animals are cared for and transported in accordance with rules and regulations
2. Research has relevance to human or animal health
3. Appropriate species, minimum number of animals, consideration of non-animal alternatives
4. Avoid or minimize pain, discomfort, and distress
5. Use appropriate sedation, analgesia, or anesthesia
6. Animals that will suffer severe or chronic pain or distress that cannot be relieved will be humanely euthanized
7. Animals will have appropriate veterinary care and husbandry
8. All personnel involved in care and use of animals will be appropriately qualified and trained
9. Any exceptions to these principles are the decision of the IACUC

Animal Research guidelines:

The IACUC follows the three "R's" of animal use and promotes these principles on the YCP campus.

Reduce the number of animals used to the minimum required to meet the goals of the course, experiment, or wet lab.

Refine protocols to minimize animal stress, pain, or suffering.

Replace animal models with non-animal alternatives whenever possible.

To ensure compliance with the highest humane, ethical, scientific and legal standards, all York College faculty members undertaking research or teaching using any vertebrate or invertebrate animals must rely on the Guide to provide appropriate housing and care. Additionally, when faculty members plan to use vertebrate animals in research or teaching, they are required to complete an Animal Use in Research and Teaching Form (IACUC protocol form) and submit an electronic copy to YCP's **Institutional Animal Care and Use Committee** chair for formal committee review **before** beginning those activities.

The IACUC must review the following:

- Any protocols for the use of vertebrates in teaching or research.
- Protocols that include use of invasive procedures, hazardous substances, pain, stress or euthanasia require careful and extensive consideration.

Below is a guide for how to fill out and submit a protocol form for review.

How to submit a protocol:

The protocol form is located on the **YCP IACUC website**. Please download the most recent version of the protocol form prior to making any edits for your personal protocol. Do not attempt to edit the document directly.

Your protocol submission to the IACUC will need to follow the instructions provided. Please do not leave any section blank. For sections not applicable to your project or course please fill in "Not applicable."

Please submit your protocol as a single electronic file to bhagerty@ycp.edu. Save this file with a unique new name (Last name of faculty_researchdescriptor_IACUCform.docx).

NOTE Electronic submissions to the IACUC chair are required. All information must be submitted, completely, as requested on the YCP IACUC Protocol Form. Insufficient information may delay the review process. The IACUC reserves the right to request additional information or to table protocols that do not meet the basic submission requirements.

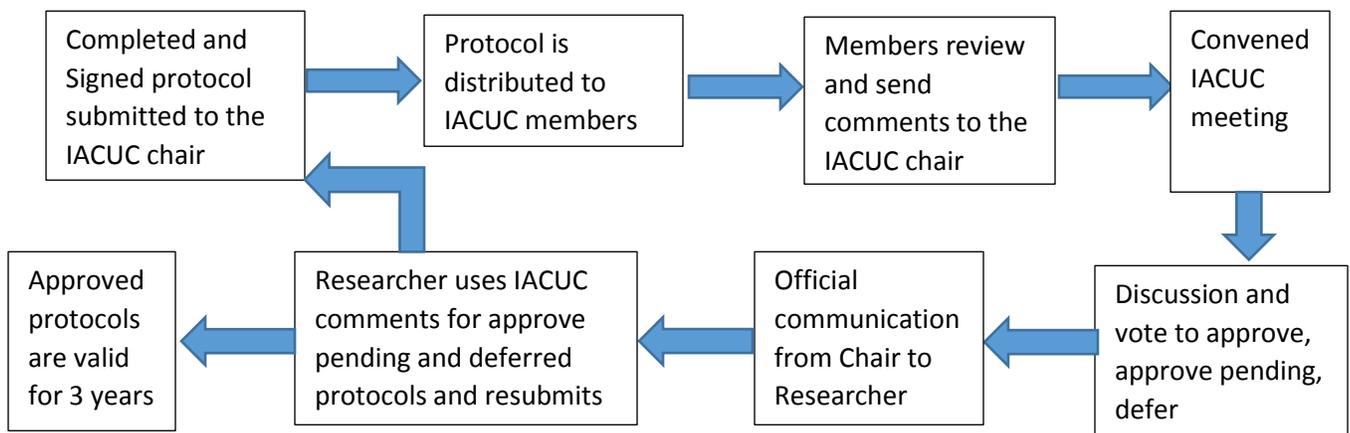
Submission Deadlines and Expiration

Submissions to the IACUC are accepted on a rolling basis with at least three specified deadlines during each academic year. Although you may submit at any time, your protocol may not be reviewed immediately. Please check Google Calendar for specified submission dates and upcoming IACUC meetings. You must allow time for the IACUC to review your protocol and for potential revisions followed by a second review prior to beginning a project. Therefore, plan appropriately. Protocols for Spring Teaching should be submitted at the early Fall deadline and Fall teaching protocols should be submitted by the end of the Spring semester. Protocols remain valid for 3 years from the date of approval. Research protocols should be submitted at least two months prior to beginning the project.

Approximate due dates for protocols and amendments to be reviewed. Check Google Calendar for exact due dates which shift due to IACUC meeting schedules.

- **August 1, November 1, February 1, May 1**

The following chain of events occurs after you submit a protocol form:



IACUC Chair

The IACUC Chair (Dr. Bridgette Hagerty) can assist with questions concerning submission & status of your protocol. She can be reached by phone at (717) 815-1294 or by email at bhagerty@ycp.edu, and is located in LS220.

Writing an IACUC Animal Protocol Approval Request (“protocol” for short)

In general, when you plan to write a protocol for a teaching course, include all possible animal activities associated with the classroom and laboratory components of the course. For a research protocol, a good strategy is to write a more broad-based protocol that includes all related procedures for a larger scale project. This will minimize the number of new protocols that need to be written when new student projects arise. Please consult with an IACUC member about the scope of your protocol.

Please see Dr. Tiffany Whitcomb’s example of a protocol in the shared Google Drive IACUC Folder. We also have two additional protocols for you to review as examples.

Below are some tips for filling out each section.

Section 1. Explanation of Animal Use

Remember that you should be accounting for all animals (all species) that will be used during each of the three years your protocol is valid. The total number included should be what will be required over the three year active period of the protocol. For some experimental designs, it is recommended that you request 10% more animals that you plan to use to help with unforeseen circumstances (see Section 2 as well).

Section 2. Rationale for animal use and number of animals

Rationale for species: consider why the species you are requesting is more appropriate than other possible species. Animal welfare should be the consideration, not cost. If you are submitting a teaching protocol, please explain why the use this species is scientifically justified to meet the learning outcomes for your course.

For example, if mice are being used during a lab, here is one possible rationale.

“Mice are the lowest phylogenetic species that is capable of exhibiting the social behavior that is required for the exercise. They are a good model for human behavior/physiology”.

Justification for number of animals: The USDA has noted that "A proposal to conduct an animal activity must provide a rationale for the appropriateness of the number of animals used." A statistical justification can be used when appropriate for this "rationale", however it is not required. Often, previous work can be cited or previous knowledge of the amount of variation you may encounter for your study.

The experimental groups and number of animals/group should be clearly explained in the text, or using a diagram or chart. This is intended to make it clear how all animals are being utilized and to account for the number of all animals to be used throughout the study.

The total number of animals should reflect how many of each species will be used over the 3 year period. It is recommended to request more than needed (10%) to account for unforeseen

circumstances (e.g., requesting 7 fish when you only plan to use 5). If you recognize that the number of requested animals is not sufficient while your project is in progress, you may request an increase in the number requested using an amendment form which is described on page 11.

Alternative: A statement of what alternatives were considered must be included.

Section 3. Lay Summary

A lay summary is a brief description (no more than 300 words) that can be understood by a non-scientist from the general public. It is important that this description can be understood by someone with no science background. Key features of the lay summary are:

- Description of the significance of the research area (Why is this research necessary?)
- Description of the impact of the work on human or animal health (What information do you hope to gain?)
- Brief description of the animal work (How will the use of animals help?)
- Language that is easily understood by the general public (community member of the IACUC)
- For teaching protocols, the description should explain how the use of animals help to meet the learning outcomes for the course. Seeing the animal use in context of the whole course is very helpful.

Section 4. Experimental or Instructional procedures

This will be the longest part of your protocol. Explain all procedures that will be performed on animals including the following:

- If novel procedures are being used, the IACUC encourages the use of a pilot study that should be described
- Volumes for any substance administered
- Doses for anesthetics and analgesics
- Needle gauge (provide a range) for any injection
- Suture type and size (provide a range)
- Instrument preparation/sterilization
- Details of surgical procedures
- Procedures for capturing and handling wild animals (field)
- Marking or sampling procedures for wild animals (field)
- How animals will be transported if they are wild captured
- Concentrations for chemical compounds require justification and should be biologically or ecologically relevant

Do not include:

- Descriptions of in-lab bench work (e.g., pipetting animal DNA)
- Lists of references (describe procedures instead).

We recommend using subheadings to help organize your procedures. If you are describing different laboratory components for a course, please separate them into sections as well.

Section 5. Human Endpoints

Humane endpoints are thresholds that the researcher designates prior to initiating the work. The thresholds are in place to prevent unnecessary harm to research or teaching animals. They set up standards for when researchers or students will intervene in a timely manner with appropriate actions to mitigate pain and distress. This may include removing animals from a study or euthanasia. Your description should also explain how you will monitor your research or teaching animals to identify individuals that require intervention. Include time points and physical signs that you will evaluate.

Section 6. Non-duplication of Research (not required for teaching)

Please verify the literature search criteria and provide a short summary (1-2 sentences) that explains the result of your search.

Section 7. Training of Personnel Involved in Project

To complete this section, fill out the table provided. Include a description of all individuals working on the project (including the mentor (faculty) and all students working on the project). Additional students can be added with a protocol amendment.

- List each person who will be performing procedures with animals
- Assure adequate training for each person and each procedure (this training should be documented in the available log books in each animal facility).
- Make sure that all procedures are represented in the description of the training.

Please carefully review the types of training needed. Currently, standard lab safety training, completion of the medical survey form (available in the health center, must be verified by a health center staff person), and in person animal care training (given by a trained person) is required.

Section 8. Categorization of Pain and Distress

Please use the following chart to help identify the appropriate pain category for your research or teaching. Use the category that best captures the most painful procedure that will be performed. Be aware that category E is not acceptable for teaching protocols. Unless the contrary is established, investigators would consider that procedures that cause pain or distress in human beings also cause pain and distress in other animals.

Humane Use Categories (B-E) are defined by the U.S. Department of Agriculture (USDA). Category A is specific to YCP and is used for no pain or distress.

A-- Animals will experience no pain or distress. (Example – observational studies without any intervention.)

B-- Animals will be handled briefly; no painful procedures will be performed. (e.g., breeding)

C-- Animals will not experience pain, discomfort or distress at all, or will experience pain, discomfort or distress that would not customarily be treated with pain-relieving drugs in human medicine or standard veterinary practice. (Examples – euthanasia followed by tissue harvest, subcutaneous, intramuscular, or intravenous injection of drugs, venipuncture to collect blood samples. For field studies, if animals are captured in the wild and transported or captured and held for extended periods of time)

D-- Animals might experience pain, discomfort, or distress which would customarily be treated with anesthetics, analgesics, or tranquilizers, and this treatment or other supportive care will be given as appropriate because it would not interfere with the experimental results or interpretation. Using chemical compounds with outcomes that have not been described from previous research is included in this category.

E-- Animals might experience pain, discomfort or distress for which anesthetics, analgesics, or tranquilizers would customarily be given but these drugs cannot be used because their use would adversely affect the experimental results or interpretation.

****If there are animals in Category E, please provide a full description of the procedures producing pain, discomfort or distress in animals and the reasons such drugs cannot be used.****

Please consult with the IACUC chair if you are unsure about the appropriate pain category for your experiment or laboratory (teaching). The IACUC continues to clarify what constitutes each pain category and we will do our best to be as clear as possible.

Section 9. Literature Search for alternatives to painful procedures

All faculty and students must fill out this section if animals in the protocol are designated to Pain Categories D or E only. This is required for research and teaching.

In order to comply with USDA regulations (Sect. 2.31(d)ii and 2.32[5] of the Animal Welfare Act), you must show that you have consulted Databases concerning the following three specific issues: (1) considering alternatives to procedures that may cause more than momentary or slight pain or distress to the animals; (2) considering alternatives to the use of live animals in your research; and (3) to prevent unintended and unnecessary duplication of research involving animals.

You must search at least two databases. Google Scholar is acceptable. Please note that Medline, Medline Complete, PubMed, Current Contents use the same database and should not be considered as two separate searches.

Provide a 1-2 sentence summary for the result of your literature search, explaining what you found. Please include the search terms while describing your summary and include the procedures considered painful in your search.

Section 10. Anesthetics, Analgesics, or Tranquilizer Use

Please check yes or no for answer all the applicable questions. If you do not plan to use anesthesia, check no and skip the remaining questions. If you answer yes, please provide as much detail in your answers as possible.

Section 11. Surgical Procedures

Please check yes or no for answer all the applicable questions. If you do not plan to use conduct a survival surgery, check no and skip the remaining questions. If you answer yes, please provide as much detail in your answers as possible.

Section 12. Final Disposition

Faculty and students must consider the final disposition of all animals used in research or teaching protocols. Euthanasia is one possible final outcome, but animals can also be transferred to other protocols in some situations or adopted by a responsible party.

For euthanasia, please refer to the AVMA Guidelines for the Euthanasia of Animals, 2013 Edition (in Google Docs IACUC folder). Currently, CO₂ is an acceptable method with conditions. You must have a secondary procedure explained as well. Consult with Joan Carpenter regarding appropriate procedures for our CO₂ chamber.

If adoption will be the final disposition for all or some of the animals, please have the Adoption Agreement filled out by the appropriate parties and submitted to the IACUC chair.

Section 13. Exemptions

Sometimes certain exemptions to standard levels of animal care and use are required. For example, food restriction may be required prior to certain procedures. These exemptions will be carefully considered by the IACUC. Please provide adequate justification for use of the exemptions and describe how you will monitor the health of the individuals. Certain exemptions such as death as an endpoint are not acceptable for teaching protocols.

Section 14. Hazardous Materials Use

Any substance considered hazardous to humans or other animals in the facilities should be addressed here. You should consider how you can limit exposure to the substance and how you will dispose of the substances and animals exposed to the substance.

Section 15: Use of non-pharmaceutical grade compounds in animals

We should be using pharmaceutical grade compounds whenever possible. Any compound that does not meet purity standards of a recognized pharmacopeia must be described in this section. The FDA has a list of approved compounds on their [website](#).

When selecting compounds the following order of choice should be applied:

1. FDA approved veterinary or human pharmaceutical compounds;
2. FDA approved veterinary or human pharmaceutical compounds used to compound a needed dosage form;
3. USP/NF, BP, or other pharmacopeia recognized PGCs used in a needed dosage form;
4. Analytical grade bulk chemical used to compound a needed dosage form (requires justification);
5. Other grades and sources of compounds (requires justification).

Appropriate justifications to use non-pharmaceutical grade compounds include the compound not being available in pharmaceutical grade and if the appropriate concentration for your species is not available in that form. If you will be using non-pharmaceutical grade compounds please describe how they will be suspended including checking for the appropriate pH, stability in solution and sterility.

Section 16. Animal Care and Housing (Animals from commercial sources)

Please describe all procedures for housing and daily, weekly, and monthly care of animals. Currently there are standard operating procedures (SOP) for most species housed on campus. Please see Joan Carpenter regarding these procedures so that you are aware of the standard care each species receives. SOPs are available for download and physical copies are located in the animal facilities. Short summaries are also provided near animal housing.

York College is not currently set up to house breeding colonies of any species. A breeding colony is any situation where animals are permitted to knowingly produce offspring. The IACUC will not permit this type of procedure.

You will also need to consider diseases that can be spread among species and humans. Please explain how you will prevent transfer of disease and what precautions you will take.

Section 17. Animal Care and Housing (Animals from wild populations; includes field studies)

Additional permits are required to obtain animals from the wild. Whenever animals are handled in the wild or brought from a natural population into a laboratory, attention to the possibility of disease transmission is extremely important. Please consider and explain how you will reduce the dangers of disease transmission.

Additionally, animals collected from natural populations and brought into a laboratory setting cannot be released back into the wild.

You will also need to consider diseases that can be spread among species and humans. Please explain how you will prevent transfer of disease and what precautions you will take.

Protocol Amendments

You may need to make changes to a protocol that is already approved by the IACUC. There is a specific form in place to make these changes. The Animal Protocol Amendment Form is available on the YCP IACUC website.

Administrative minor changes can be approved with review by the IACUC chair only. These changes include

- Changing project title
- Increasing the number of animals needed by up to 10%
- Changing personnel working on the project (students) or their contact information

Changes to procedures require review by the Attending Veterinarian.

- Change to any part of an experimental procedure (timing, dose, substance used) or adding a new procedure (that does not negatively impact animal welfare)
- Change in the final disposition of animals at the end of a project (including euthanasia)

Major changes require review by the entire committee

- Change in study objectives
- Increasing the number of animals needed by more than 10%
- Change in procedures that results in a change in the pain category
- Change in species used, animal housing, or other major animal change

Please fill out the amendment form with as much detail as possible whenever a change is needed. Amendments are accepted on a rolling basis. All administrative and procedural changes will be reviewed as soon as possible after they are submitted.

Thank you for all your hard work to make animal welfare a priority on this campus.

Last revised 4/28/2017