

**University of Missouri-St. Louis**  
**Application for Authorization to use Animals in Research or Teaching**

The University of Missouri-St. Louis Institutional Animal Care and Use Committee (IACUC) is required by federal regulations to review all projects (research, teaching, or other) involving the use of live vertebrate animals. This includes new or competitive renewal research proposals as well as the use of live vertebrate animals in teaching demonstrations and/or student laboratory studies. This review is necessary for compliance with provisions of the Animal Welfare Act, for federal granting agencies, and for maintaining our accreditation by the American Association for the Assessment and Accreditation of Laboratory Animal Care International (AAALAC).

**Instructions**

Using the attached form, a Principal Investigator (PI) or course director must submit a protocol for any research or teaching activity involving live vertebrate animals. The protocol must be approved by the IACUC without restrictions before the proposed use of animals can commence. The IACUC welcomes inquiries during the planning stages about technical or humane aspects of the proposed research or instruction. Early consultation with the attending veterinarian regarding any facet of animal use can reduce the likelihood that protocol approval will be delayed due to questions arising during the protocol review. Please direct any questions regarding animal care to the Office of Research Administration (ORA) or the Chairperson of the IACUC.

The completed **typed** protocol review form (and attached narrative, if applicable), as well as 8 copies, should be submitted to John C. Hancock III at R223 Research Building, (314) 516-5928, or ORA at 341 Woods Hall, (314) 516-5894. All necessary signatures must be obtained before submission. A protocol must be received in the Office of Research Administration (ORA) at least two weeks before the monthly IACUC meeting at which it will be reviewed so that copies can be distributed to all members of the IACUC. The Committee may: 1) approve; 2) approve with conditions imposed; 3) request further information; or 4) disapprove. The investigator/instructor will be notified in writing of protocol disposition by the chairperson of the IACUC. Investigators and course directors are encouraged to submit their protocols for review well in advance of the start date of a proposed study to avoid possible delays in initiation of the study. The IACUC meets only once a month (Contact ORA for meeting dates), and protocols must be received at least two weeks before the IACUC meeting.

Complete all portions of the protocol form up to and including Section D. Complete a copy of Appendix 2 for each individual involved in the study. For sections E - J, complete and submit only those sections that are applicable to your proposed study.

**Protocols will be valid for a maximum of three years from the date of protocol approval.**

Continuation of a project beyond the approved 3-year period will require submission of a new protocol.

Federal regulations require that protocols be updated annually. For this purpose, a two-page Annual Continuation Review form, which requests information about the status of the covered activity, will be sent to investigators approximately one month before the anniversary of the protocol's approval. Any anticipated change in procedures, number of animals to be used, or personnel should be submitted to the IACUC in the form of an amendment to the original protocol before such changes are instituted. The continuation form is also available online from the ORA website ([www.umsl.edu/services/ora/IACUC/html](http://www.umsl.edu/services/ora/IACUC/html)).

Protocol Number -

ORA Use Only

**University of Missouri - St. Louis  
Protocol for Review by  
Institutional Animal Care and Use Committee**

Principal Investigator (PI) Name and Title (typed)	PI Department Address / Phone
PI Signature / Date	PI Home Address / Phone / E-mail Address
Faculty Sponsor/Department Head Signature / Date (Required for student projects)	Sponsor Name / Title (typed)
Project Title	
Proposed Start Date (Month/Day/Year):	Proposed End Date (Month/Day/Year):
Co-Investigator Name and Title (typed)	Co-Investigator Department Address / Phone
Co-Investigator Signature / Date	Co-Investigator Home Address / Phone
Funding source (grant or contract, agency, departmental funds, or none)	
This application is: _____New _____Renewal _____Modification	If this is a renewal or modification, previous protocol number:
Biomedical Index Category (see Appendix 1). Mark one, as appropriate: _____A _____B _____C _____D	

**Obtain all necessary signatures before forwarding to the Office of Research Administration, 341 Woods Hall**

**To be completed by the IACUC:**

Reviewed by IACUC:  _____ Signature of Chair, IACUC	Date: _____
( ) Approved      ( ) Approved pending modification      ( ) Disapproved	
Comments:	

**University of Missouri-St. Louis**  
**Authorization to use Animals in Research or Teaching**

Principal Investigator/Course Director \_\_\_\_\_

Title of Project: \_\_\_\_\_

**Applicant's Certification**

I am familiar with and will comply with the legal standards of animal care and use established under federal and state laws and policies, as well as university policies (e.g. Animal Welfare Act, the principles in the U.S. Interagency Document entitled "Principles for the Utilization and Care of Vertebrate Animals Used in Testing, Research, and Training," and the standards in the "Guide for the Care and Use of Laboratory Animals").

I certify that I am familiar with, experienced in, and technically capable of performing all animal manipulations and procedures described herein; that I assume responsibility for the supervision and training of any person who performs work on this project; or that I have made arrangements (documented herein) for such work to be performed by knowledgeable and experienced people.

I further certify that all the information provided in, or attached to, this form is true and accurate as of the date submitted. Any revisions to animal care and use as outlined in this protocol will be submitted immediately in the form of a written amendment and forwarded to the IACUC for review.

Applicant has been trained in the general issues of Animal Welfare in the animal care training program provided by UM-St. Louis or a comparable program at

\_\_\_\_\_ on \_\_\_\_\_  
Institution Date

and in procedures relevant to this protocol, as documented in the attached Training Documentation Log (Appendix 2).

\_\_\_\_\_  
Signature Date

**A. Personnel**

1. Indicate the person responsible for daily supervision of animal use and procedures.

Name \_\_\_\_\_ Email \_\_\_\_\_

Lab \_\_\_\_\_ Office \_\_\_\_\_ Lab/Office Phone \_\_\_\_\_

2. List all additional personnel involved in the project. Record in the order to be called in emergencies.

<b>Name</b>	<b>Work Phone</b>	<b>Office</b>	<b>Lab</b>
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3. Complete the training form (Appendix 2) for **each individual** who will be involved with handling the animals. If new individuals are added to the protocol after protocol approval, a training form (Appendix 2) for each person must be completed and submitted to ORA.

**B. SUMMARY OF PROPOSED ANIMAL STUDY**

*Using the outline below, provide a brief description of the proposed study involving animals. Please use language easily understood by a non-scientist.* The description should be appropriate for release by the Office of University Communications to satisfy any general inquiries from outside sources about the study.

1. Specific scientific questions addressed (or course focus for a teaching project):
  
2. General goals and experimental design:
  
3. Significance of the study:
  
4. Proposed start date and time frame for the project:
  
5. Provide a brief outline of procedures involving animals:

## C. ANIMAL USE

1. **Affirmation** that the proposed animal use is not unnecessarily duplicative.

In submitting this protocol, the PI or course director affirms that the proposed animal use does not unnecessarily duplicate previous experiments.

2. **Justification** of animal uses, species and numbers.

- a. Justify the choice of species selected for the project.

- b. Justification of number of animals used.

- 1) For laboratory studies or field studies with a fixed experimental design, provide justification for the number of animals to be used. Include the definition of experimental groups and the number of animals needed per group. Provide the rationale for determining these numbers, including statistical considerations where appropriate.
- 2) For field studies involving animal surveys or capture and release, please indicate the optimal numbers of each species that will be surveyed and/or the upper limit on numbers of animals that will be captured. If the number that will be surveyed is contingent on local conditions, so state.

3. **Alternatives to potentially painful procedures**

The Animal Welfare Act requires that a principal investigator consider alternatives to proposed procedures that may cause more than momentary pain or distress to the animals and that the PI provide a description of methods or sources used to determine that alternatives are not available. Alternatives include refinement of procedure(s) to reduce the amount of pain and/or distress, reduction of the number of animals used, and replacement of animal use with non-animal systems.

If the proposed project includes procedures that may cause more than momentary pain or distress to animals, indicate databases searched, literature sources, or other sources consulted to determine that no alternatives to the proposed procedures appropriate to the proposed study exist. The UMSL-IACUC requires that a literature search be performed for all protocols classified as a B, C or D Biomedical Index.

- |   |   |
|---|---|
| <input type="checkbox"/> Library Resources  | <input type="checkbox"/> MGI – Jackson Lab          |
| <input type="checkbox"/> MEDLINE/Current Contents                                       | <input type="checkbox"/> CAAT – John Hopkins        |
| <input type="checkbox"/> BIOSIS   | <input type="checkbox"/> CRIS                       |
| <input type="checkbox"/> Biological Abstracts   | <input type="checkbox"/> CRISP                      |
| <input type="checkbox"/> Biological & Agricultural Index                                | <input type="checkbox"/> Primate Information Center |
| <input type="checkbox"/> NIH Grants Database  | <input type="checkbox"/> COS – NSF Grants Database  |
| <input type="checkbox"/> AGRICOLA   | <input type="checkbox"/> COS – Expertise Database   |
| <input type="checkbox"/> AWIC   |   |
| <input type="checkbox"/> Consultation with expert in the field (Provide details below.) |   |
| <input type="checkbox"/> Other (Specify) _____  |   |

- a. For each database searched, as indicated above, indicate (i) the date on which the search was performed and (ii) the time span covered by the search. (Include both the start-date and end-date of the search; the range should cover a minimum of 10 years and end in the present year). If more than one database was searched, list each database and time span separately.
  
- b. For each database search indicated above, list all keywords used to search the database.
  
- c. If the major source of information about alternatives to potentially painful procedures involved consultations with knowledgeable experts, please identify those experts and indicate the basis of their expertise.

- d. Did the search results or consultations indicate that there might be alternative procedures that would be potentially less painful or distressing?  
**IF YES**, please provide justification for why the alternative procedures are not appropriate for the proposed study.

**IF NO**, please acknowledge by typing the PI's initials and including the date of acknowledgement.

- e. Did any of the search results or consultations indicate that there may be appropriate non-animal model alternatives, such as *in vitro* systems, to the use of animals proposed in this protocol?

**D. SPECIFIC PROPOSAL**

Write a brief but complete description of the proposed use of each species, including procedures. What will be done with the animals? How will they be affected, changed, or altered?

**E. NON-SURGICAL PROCEDURES (Include only if applicable.)**

1. Describe all non-surgical manipulations to be performed on research animals in this study. List probable clinical responses to and potential complications of the experiments. Indicate how these complications will be managed.
  
2. List any anesthetics, analgesics or neuromuscular blocking agents which will be used during non-surgical procedures. **For each species**, list agents, dosage and route of administration. List probable clinical responses to and potential complications of the experiments.

**F. SURGICAL PROCEDURES (Include only if applicable.)**

**1. For Survival Surgical Procedures**

**For each species**, describe in detail the surgical procedures to be used, specifically: pre-surgical preparation, anesthetic regimen (drugs, dosage and route of administration), surgical technique, and postoperative care. If post-operative analgesics are necessary, include name of drug, dosage, route and frequency of administration. **If analgesics will not be used, explain why. If analgesics must be withheld, provide scientific justification with references.**

- a. List probable clinical responses to and potential complications of the surgical procedures. Indicate how these complications will be managed. List who will be responsible for providing postoperative care.
  
  
  
  
  
  
  
  
  
  
- b. If multiple major survival surgeries are planned, provide as an attachment an explicit description of and justification for the medical and/or scientific aspects of the investigation that require the performance of multiple major survival surgeries on particular animal subjects. **A major surgical procedure is defined as a surgical intervention that penetrates and exposes a body cavity or one which produces a permanent impairment of the animal's physical or physiological functions.**

**2. For Non-survival Surgical Procedures (if applicable)**

**A non-survival surgical procedure is one in which animals do not recover from anesthesia.**

**For each species**, describe concisely the surgical and experimental procedures, including anesthetic regimen to be employed. List agents, dose, and route of administration for each species. Describe how the animal(s) will be euthanized.

**G. FIELD STUDIES (Include only if applicable.)**

1. List any permits required and indicate whether they have been obtained.
  
2. List the study site(s).
  
3. The field study described will be: (Check all that apply.)  
 Observation of free living animals  
 Live capture and release  
 Non-survival collection.
  
4. Field Study Techniques.  
Complete the following questions that are relevant to your project.
  - a. Please give a short description of observation technique(s).
  
  - b. Describe method(s) of capture to be used, including devices to be used, frequency with which these devices will be checked, estimated maximum time animals will be restrained before release, and precautions which will be taken to reduce non-target captures.
  
  - c. If drugs are to be used, indicate which drug(s), reason for use, dosage, route, and frequency of administration, and who will administer drug(s).
  
  - d. If marking procedures are to be used, please describe.
  
  - e. If a telemetry package is to be used, describe the weight and size of the total package, type of antennae (including length), and how it will be attached or implanted. Also, describe the procedure for removal of the package from the animal at the end of the study.
  
  - f. If blood or other tissue samples are to be taken, describe procedure(s) to be used, including number, frequency, and weight/volume of sample(s) to be taken.



**J. EUTHANASIA (Include only if applicable.)**

State the technique used for performing euthanasia on each species. Be specific regarding euthanasia agent, dosage and route of administration. If proposed method of euthanasia is not consistent with the recommendations contained within the 2000 (or most recent) *Report of the AVMA Panel on Euthanasia* (see <http://www.AVMA.org>), please provide justification. What will be the final disposition of the animals at the end of the study? Provide the names of individuals performing euthanasia.

**Appendix 1**  
**BIOMEDICAL INDICES**

- |          |   |   |
|----------|---|---|
| <b>A</b> | Procedures do not induce pain, discomfort or distress greater than that produced by routine injections or venipuncture. | Includes simple procedures such as parenteral injections; blood sampling; physical examinations; live animal evaluations; behavioral testing without significant restraint or noxious stimuli; holding of animals for experimental purposes; nutritional studies; breeding studies; or approved methods of euthanasia which result in rapid loss of consciousness.  |
| <b>B</b> | Procedures which may cause <b>minor</b> distress or pain of short duration.   | Includes nonsurvival surgical procedures performed under general anesthesia; surgical procedures performed under anesthesia that may result in some post-operative discomfort, but no gross anatomical or functional deficits; behavioral experiments on awake animals that involve restraint (less than 4 hours); noxious stimuli from which escape is possible; social isolation or crowding; induction of infection or infestation which is expected to produce mild or no clinical disease; application of toxic agents that do not produce major functional deficits and will result in mild or no clinical disease or discomfort. |
| <b>C</b> | Procedures which may induce <b>more than</b> minor distress or pain.  | Surgical procedures performed under general anesthesia that may result in significant post-operative discomfort or functional deficit; prolonged periods (more than 4 hours) of physical restraint; noxious stimuli from which escape is not possible; experiments involving extremes in environmental conditions; prolonged restrictions of food or water intake; administration of Freund's Complete Adjuvant.  |
| <b>D</b> | Procedures which may induce <b>severe</b> distress or pain.   | Infliction of severe trauma on unanesthetized animals; permitting recovery of consciousness after severe trauma has been caused under anesthesia; induction of infection which is expected to cause serious clinical disease or death; application of toxic agents that may cause major functional deficits or serious clinical disease; chronic maintenance of a disease/functional deficit where the endpoint is death of the animal; severe chemical or physical injury experiments.   |

**APPENDIX 2**  
**Training Documentation Log**

**Please complete one form for each individual involved in the project.**  
Complete only the areas that apply to the current protocol

Each individual listed on this protocol must be aware of responsibilities to the institution and the animals in his/her care. The principal investigator certifies that individuals involved in the project demonstrate competence with techniques described in the protocol including those to minimize animal pain and distress.

**Training documentation for (name):**

**Title of Project:**

**Principal Investigator:**

Procedure	Species *	Training Method**
Animal Welfare issues and the Animal Welfare Act		
Occupational Health Issues related to laboratory animal work		
Occupational Health Issues related to field studies, including rabies where appropriate		
Animal Handling/Restraint		
Identification of Individual Animals (as appropriate)		
Euthanasia		
Blood/Tissue Collection Techniques		
Injection Techniques		
Animal Husbandry		
Anesthesia		
Analgesia		
Aseptic Technique		
Surgical Techniques (general)		
Surgical Technique (specific)		
Intraop Care/Monitoring		
Postop Care/Monitoring		
Lab Animal Breeding		
Animal Trapping		
Other Procedures - Please list		

\* List all species included in protocol for which training on individual procedures was obtained.

\*\*Specify method(s) of training from the following list:

1. Training by PI/Lab Staff
2. Training by IACUC (i.e. wet labs, videos, seminars)
3. Training by Animal Welfare Unit personnel or veterinarian
4. Other (please provide brief explanation)