USING VERTEBRATE ANIMALS IN TEACHING AND RESEARCH
AT MOUNT HOLYOKE COLLEGE

Mount Holyoke College
SEP 17 1999
Dean of Faculty
This document has been created to assist faculty and staff who are planning to use vertebrate animals in teaching or research at Mount Holyoke College. It provides some background information which helps explain some of the regulations that necessitate gathering certain types of information. The ultimate goal is to assure the continued humane treatment of animals used in teaching and research at Mount Holyoke College. Mount Holyoke College is committed to high scientific standards through high quality animal care and use. The Institutional Animal Care and Use Committee which is responsible for the assurance of compliance with federal regulations concerning vertebrate animal use welcomes any comments about this document.

Deborah C. Piotrowski
Chair, Institutional Animal Care & Use Committee

August 1995, October 1997, August 1999
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I. Background

Mount Holyoke College assures that all vertebrate animals used in teaching and research are treated humanely following U.S. government regulations set forth in the Animal Welfare Act (AWA) (U.S. Dept. of Agriculture, 1992 ed. Chap. 1 Subchapter A-Animal Welfare. 9 Code of Federal Regulations, parts 1, 2, and 3) and Public Health Service Policy on Humane Care and Use of Laboratory Animals (PHS Policy) (U.S. Public Health Service, 1986; reprinted 1996), and the guidelines found in the Guide for the Care and Use of Laboratory Animals (Guide) (Institute of Laboratory Animal Resources, Commission on Life Sciences, National Research Council, 1996). The AWA regulations and the PHS Policy mandate the establishment of an Institutional Animal Care and Use Committee (IACUC) which reviews all vertebrate animal use proposals to ensure that investigators minimize their use of live animals and assure that any pain, distress, or other harm to laboratory animals is reduced to the minimum necessary to obtain valid scientific data.

Mount Holyoke College has an Assurance document (#A3618-01) on file with the Division of Animal Welfare, Office for Protection from Research Risks (OPRR), National Institute of Health.

II. MHC IACUC

The Mount Holyoke College Institutional Animal Care and Use Committee currently consists of 7 members appointed by the Chief Executive Officer (the President). It is an official college committee. PHS Policy mandates that the Committee consist of not less than 5 members and shall include at least one Doctor of Veterinary Medicine, one practicing-scientist experienced in research involving animals, one non-science member, and one individual who is not affiliated with the institution in any way except as a member of the IACUC. This last person represents community concerns. A list of the current membership is included at the end of this document.
Along with the above mentioned function of the IACUC to review vertebrate animal use proposals with respect to animal numbers and pain assessment, the IACUC is also obligated to halt unnecessarily duplicative research (AWA, Part 2, subpart C, sect.2.31,d iii). The burden of proof concerning duplicative research rests with the principal investigator. The IACUC also has oversight of training of all persons using vertebrate animals, and develops policy on vertebrate animal use for the institution.

III. The Vertebrate Animal Use Proposal

A. General Information

The Mount Holyoke College Vertebrate Animal Use Proposal is a 6-page form (revised 8/99; a copy is included with this document) which must be filled out by the principal investigator or faculty when vertebrate animal use is planned for teaching or research. Each proposed project requires a separate proposal form. The signed original PLUS 56 copies are submitted to the IACUC Chair (Deborah C. Piotrowski, Department of Biological Sciences). The IACUC Chair assigns a reference code to the proposal and distributes the copies to all IACUC members, and designates 2 members to provide an in depth review. Allow a minimum of 1 week for the review. Depending upon additional information that may be requested from any IACUC member, an additional week may be required. The veterinarian will review all proposals that are invasive or involve administration of any drugs. Any IACUC member has the right to request that a particular proposal be reviewed by the entire Committee.

A written decision or e-mail communication on the outcome of the review will be sent to the faculty investigator/sponsor and the respective Department Chair. Should approval be denied, the faculty investigator/sponsor may ask for reconsideration by the IACUC, and in so doing, provide appropriate response to IACUC concerns. Failing this, the IACUC decision stands.

There is a one-year time limit for an approved project to begin. If a researcher has not begun the research in an approved project within a year, (s)he must submit a new proposal form and start the approval process again. [MHC IACUC December 18 & 21, 1998]

When there is a recurring use of animals in teaching that remains the same every semester or year (e.g., a specific lab exercise), the appropriate detailed animal use proposal form need only be filled out once, and will remain on file with the IACUC Chair. All ongoing approved proposals must come up for annual review, however. Faculty are asked to fill out the “Ongoing Vertebrate Animal Use” form providing the date(s) of the approved animal use and any updated information, and submit the form to the IACUC Chair before the semester of intended use (i.e. submit form by May 1 for Fall semester use, by Dec. 1
for Spring semester use). The Committee will review these ongoing proposals at its semiannual meeting before the semester that these activities would occur.

In order to comply with government regulations on oversight, anyone whose approved vertebrate use proposal now seems to require additional animals from the original specified amount, needs to seek additional approval from the Committee to purchase or breed more animals. [MHC IACUC December 18 & 21, 1998]

In general, for new animal use in teaching, the IACUC requests that all the semester's new proposals be submitted by mid-September for Fall semester, and mid-February for Spring semester to avoid any delays in planned use of animals in teaching. For use of animals in research, it is prudent to submit the proposal(s) as far in advance of the planned start date as possible (e.g., a month, at least).

**B. Specifics of the MHC Vertebrate Animal Use Proposal form**

The MHC Vertebrate Animal Use Proposal is divided into 5 main sections: overall general information concerning the project, project details, occupational health and safety issues and training, consideration of alternatives to the use of vertebrate animals, and an Assurance Statement. Much of the requested information is needed by the IACUC to assure compliance with the AWA and PHS Policy.

The following categories and numbers refer to specific questions on the MHC Vertebrate Animal Use Proposal form.

**Overall General Information:**

1. State the proposed project title or general description of the use of vertebrate animals.

2. "Independent student research" is different from 295 or 395 which is investigation within the context of a course where the investigation involving animals is part of the laboratory experience of the course. The focus of the course may be on technique and the investigation is an application of the technique(s) learned.

   "Natural history observation" is the observation of the vertebrate animal in lab in as natural a setting as possible with no experimentation on the animal. Faculty utilizing this form of vertebrate animal use can indicate "not applicable" to those questions asked on the proposal form which are geared toward traditional experimental studies.

   A "field study" involves observing vertebrates, usually birds or squirrels, in their natural environment. Sometimes the environment is altered experimentally, and observations of the animals' response(s) are recorded.

3. Faculty member information
4. Grant information, if applicable. Any government funding from the Public Health Service will require strict oversight on vertebrate animal use.

5. Information on students or technicians involved in the research project. Class use of vertebrates would only need faculty information in #3 on the proposal form.

6.8. Details on the vertebrate animals to be used. Note that special housing arrangements must be determined before the animals are obtained, and this information should be provided to the animal curator well in advance of the animals’ arrival to allow for the optimal welfare of the animals.

9. Disposition of the animals at the end of the project is asking whether the animals will be euthanized, kept for another project, or used as breeders in a maintenance colony.

10. Primary animal caretaker information

Project Details:

1.-5. Self-explanatory. Use as much space as needed or additional sheets to provide details of the proposed project. In 5., the underlying basis for the question is unnecessarily duplicative experiments (AWA, Part 2, subpart C, sect.2.31d iii). The IACUC wants the faculty investigator/sponsor to consider the proposal in this light.

6. The search for alternatives is only necessary if you will be using a procedure that causes more than momentary pain to the animal. Principle #4 of the U.S. Government Principles For the Utilization and Care of Vertebrate Animals Used in Testing, Research and Training (1984, Interagency Research Animal Committee) states that “(p)roper use of animals, including the avoidance or minimization of discomfort, distress, and pain when consistent with sound scientific practices, is imperative. Unless the contrary is established, investigators should consider that procedures that cause pain or distress in human beings may cause pain or distress in animals.”

The IACUC is mandated to assure that alternatives to the use of animals have been considered, especially when any pain or distress to the animals is involved. The faculty investigator and any research students involved in the project must sign an Assurance Statement at the end of the proposal to this effect.

An alternatives search can involve a literature search using a database such as Medline, or obtaining information from the Animal Welfare Information Center (AWIC). It can also involve conversations with colleagues in the field over the internet. Provide details on whatever search was performed if this is applicable to your research project and provide a complete citation of a current published work using the methods or similar methods you propose to follow in your study.
7. Specific detailed information is asked for here. The scope of the details to be provided can be found after the major category checked (after the dash).
   k. an example here would be application of electric shock.
   m. administration of chemicals that are defined in the MHC Chemical Hygiene Plan.
   n. the administration of parasites to the animals (i.e. deliberate infection) for the purposes of study.

Occupational Health and Safety Issues and Training:
Self-explanatory
The training documentation attempts to satisfy, in part, the requirement that “…all scientists, research technicians, animal technicians, and other personnel involved in animal care, treatment, and use, are qualified to perform their duties.” (AWA, CFR, 2.31a)

Alternatives to the use of vertebrate animals:

The Guide for the Care and Use of Laboratory Animals (ILAR, National Academy Press, 1996, p.10) considers “availability or appropriateness of the use of less-invasive procedures, other species, isolated organ preparation, cell or tissue culture, or computer simulation” topics which should be considered by the IACUC in the preparation and review of animal care and use protocols.

Assurance:

Faculty and, in the case of student researchers, all students involved in the project, should read, sign, and date this assurance statement.

IV. Policies

A. All surgery must use aseptic technique (AWA, PHS Policy, the Guide).

B. Cage cards for animals being used in research or teaching should contain the following information at a minimum:
   1. the name(s) of the researcher(s) to which the animals belong
   2. the species and number of animals in the cage
   3. the course # or research project name or number or brief description
   4. If not being fed ad lib, specify diet and duration, and have a check-off system or area to record when animals are actually fed and given water (dates/times).
[MHC IACUC, October 5, 1994]
C. POLICY ON PURCHASE OF ANIMALS FOR RESEARCH OR TEACHING

A colony of vertebrate animals can be maintained by an investigator in anticipation of class use or research. However, vertebrate animals can only be used from this colony with an approved protocol in place detailing the number to be used for the specific project. [IACUC February 15, 1996] The maintenance of this colony alleviates problems with seasonal supply and/or time involved for any conditioning of the animals. The faculty should file a statement with the IACUC Chair when animals are obtained in anticipation of their use in teaching or research (i.e. # of animals obtained on x date in anticipation for y purpose). [MHC IACUC May 22, 1996]

It behooves an investigator/faculty new to Mount Holyoke College to consult with the IACUC Chair before purchase of any vertebrate animals for a colony as described above. This communication can help alleviate any potential problems with the Committee at a future date.

D. Communication between investigators and animal care staff

A message containing instructions on a change in care of animals (any variable) can be given via e-mail, but should also include a hard copy. There should be a 3-day notice before a change is to take effect AND the principal investigator should not assume the change will take place UNTIL he/she receives an acknowledgement (e-mail and hard copy) that the original message with instructions has been received by the animal curator. [MHC IACUC December 19, 1994]

V. Miscellaneous

Any member of the community can report deficiencies in animal care or animal abuse to any IACUC member and be guaranteed anonymity and freedom from repercussions. The IACUC will investigate all complaints and a written report will become part of the IACUC minutes.

Mount Holyoke College currently is registered with the USDA as a research facility (expires August 12, 2001). If a faculty researcher wishes to use mammals other than mice (Mus musculus) or rats (Rattus norvegicus), he/she should consult with the IACUC Chair several months in advance of any proposed start of research to discuss possibilities.
Generally, outside visitors are not allowed in the animal facilities without an escort. Prospective students may be shown the facilities as part of a tour when accompanied by a faculty member of the respective departments (Biology or Psychology/Education). No animals are to be disturbed, and the animal curator of the respective facility should be notified that visitors were shown the facility. If at all possible, inform the curator before the planned visit.

VI. Disclaimer

This document is intended to be dynamic. As government regulations and guidelines change, or as the membership of the MHC IACUC changes, so may parts of this document be changed to reflect new policies.

VII. Attachments

MHC IACUC Membership

U.S. Government Principles For The Utilization And Care of Vertebrate Animals Used In Testing, Research, and Training

MHC Vertebrate Animal Use Proposal
MOUNT HOLYOKE COLLEGE
INSTITUTIONAL ANIMAL CARE & USE COMMITTEE

Members of the IACUC for 1999-2000

Andrea Ayvazian
Sarah Bacon, Ph.D.
G. Bruce Cutting, D.V.M.
Adrienne Gagnon
Karen Hollis, Ph.D.
Anita Magovern
Deborah Piotrowski, Chair
Susan Smith, Ph.D.
U.S. GOVERNMENT PRINCIPLES FOR THE UTILIZATION AND CARE OF VERTEBRATE ANIMALS USED IN TESTING, RESEARCH, AND TRAINING

The development of knowledge necessary for the improvement of the health and well-being of humans as well as other animals requires in vivo experimentation with a wide variety of animal species. Whenever U.S. Government agencies develop requirements for testing, research, or training procedures involving the use of vertebrate animals, the following principles shall be considered: and whenever these agencies actually perform or sponsor such procedures, the responsible Institutional Official shall ensure that these principles are adhered to:

I. The transportation, care, and use of animals should be in accordance with the Animal Welfare Act (7 U.S.C. 2131 et. seq.) and other applicable Federal laws, guidelines, and policies. *

II. Procedures involving animals should be designed and performed with due consideration of their relevance to human or animal health, the advancement of knowledge, or the good of society.

III. The animals selected for a procedure should be of an appropriate species and quality and the minimum number required to obtain valid results. Methods such as mathematical models, computer simulation, and in vitro biological systems should be considered.

IV. Proper use of animals, including the avoidance or minimization of discomfort, distress, and pain when consistent with sound scientific practices, is imperative. Unless the contrary is established, investigators should consider that procedures that cause pain or distress in human beings may cause pain or distress in other animals.

V. Procedures with animals that may cause more than momentary or slight pain or distress should be performed with appropriate sedation, analgesia, or anesthesia. Surgical or other painful procedures should not be performed on unanesthetized animals paralyzed by chemical agents.

VI. Animals that would otherwise suffer severe or chronic pain or distress that cannot be relieved should be painlessly killed at the end of the procedure or, if appropriate, during the procedure.

VII. The living conditions of animals should be appropriate for their species and contribute to their health and comfort. Normally, the housing, feeding, and care of all animals used for biomedical purposes must be directed by a veterinarian or other scientist trained and experienced in the proper care, handling, and use of the species being maintained or studied. In any case, veterinary care shall be provided as indicated.

VIII. Investigators and other personnel shall be appropriately qualified and experienced for conducting procedures on living animals. Adequate arrangements shall be made for their in-service training, including the proper and humane care and use of laboratory animals.

IX. Where exceptions are required in relation to the provisions of these Principles, the decisions should not rest with the investigators directly concerned but should be made, with due regard to Principle II, by an appropriate review group such as an institutional animal care and use committee. Such exceptions should not be made solely for the purposes of teaching or demonstration.

*For guidance throughout these Principles, the reader is referred to the Guide for the Care and Use of Laboratory Animals prepared by the Institute of Laboratory Animal Resources, National Academy of Sciences.
MOUNT HOLYOKE COLLEGE VERTEBRATE ANIMAL USE PROPOSAL

I. Overall General Information

1. Title of project or brief description of vertebrate animal use:

2. Check all that apply:
   This is: ______ faculty research project
   ________ 295
   ________ 395
   ________ independent student research (e.g. Psych 306)
   ________ specific lab exercise in course (list course)
   ________ natural history observation
   ________ field study

3. Name of principal faculty investigator/sponsor: ____________________________
   phone: ________________
   e-mail: ________________
   Department/Program: ____________________________

4. Is this study funded by a grant? If yes, give name of funding agency and date of award.

5. Name(s) of student(s) or technician(s) using the animals in this project:
   phone: ________________
   e-mail: ________________
   Department/Program: ____________________________

6. Species used
   Scientific and English name: _____________________________________________
   Age (e.g. neonates, weanlings, adults, hatchling): ____________________________
   Number of animals to be used over entire course of project: __________________

7. Source of animals:
   ________ Biology stock
   ________ Psychology stock
   ________ to be purchased (give vendor name & address): ______________________
   ________ other (provide details)

8. Housing
   Location of housing: Building: ____________________________
   Room #: ____________________________

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How will these animals be housed? (Check all that apply.)

_____ hanging wire cages
_____ plastic shoebox cages
_____ glass or plastic aquaria; size: _______
_____ group house; # of animals per unit
_____ singly housed
_____ other (describe)

Are there special housing or care requirements needed (e.g. lighting regime, temperature, humidity, live food items needed, burrowing substrate, basking areas, etc.)? Provide complete details.

9. Disposition of animals at end of project (if unknown, please explain why):

10. Name(s) of person(s) responsible for the care and feeding of animals used in this study:
   
   phone: _______
   e-mail: _______
   Department/Program: _______

II. Project Details

1. Summarize the purpose of this study naming variables being studied and the applications or expected benefits of this project with respect to the biochemical, physiological, or behavioral processes that are being investigated, or the benefits to the health or welfare of people or other animals. Please be as nontechnical as possible. Also describe your basic procedures including any specialized equipment or apparatus to be used. Indicate any groupings of animals in experimental studies and the number of animals to be assigned to each group. Note any procedures that might produce pain or distress for the animal(s). Describe any discomfort or mortality that is expected.
2. Indicate the proposed start date and end date of the study. Where an exact end date is unknown, indicate the approximate duration of the project.

3. Why was this particular species chosen for this project?

4. In experimental studies, how was the number of animals to be used determined?

5. Does any part of this study duplicate previous studies? If yes, which part, and why is it necessary for your study to be duplicative?

6. If you subject vertebrate animals to more than momentary pain, the Animal Welfare Act regulations (Code of Federal Regulations, 1992 edition; 9CFR, Ch.1,sect.2.31, 8i-8iv-A) and PHS Policy on Humane Care and Use of Laboratory Animals (1986) require consideration of alternatives to animal use in research, testing, and education.

What alternatives to the painful procedures described in the project details have been considered? If alternative procedures cannot be used, please provide a brief narrative describing the methods and sources, e.g. The Animal Welfare Information Center (301-504-6212), used to determine that alternatives were not available. (Additional information on resource organizations for alternatives is available in the Department of Biology and Department of Psychology offices and on reserve in the library.)

Specify DATABASE, KEYWORD(S), and INCLUSIVE DATES in your search for alternatives. Provide a complete citation of a current work using the methods you propose to follow in your study.
7. Which of the following methods/procedures will you use during the course of this study?
   (Check all that apply and detail below.)

   a. ______ behavioral observations (includes aggressive encounters)—type, duration, location
   b. ______ food deprivation—% of free feeding; duration of deprivation phase
   c. ______ water deprivation—% normal water intake/day; duration of deprivation
   d. ______ immobilization/restraint (exclusive of confinement for weighing or manual restraint for injections)—total time/day, # of days, pattern of days; description of restraining and adaptation sessions
   e. ______ injections—agent, concentration, vehicle, injection route, dose
   f. ______ blood drawing, fluid collection—site, amount, frequency
   g. ______ antibody production
   h. ______ minor surgery (e.g. skin biopsy)—type, location, description; anesthesia (agent, route, concentration, vehicle, dose); analgesia
   i. ______ major recoverable surgery (Major surgery is defined as any intrusion into the major body cavities—cranial, thoracic, abdominal, or pelvic)—type, location, description; anesthesia (agent, route, concentration, vehicle, dose); analgesia
   j. ______ nonrecoverable surgery—description; anesthesia (agent, route, concentration, vehicle, dose)
   k. ______ application of painful or aversive stimuli (excluding injections): defined as the presentation of any stimulus considered painful/stressful to a human—type, duration, frequency
   l. ______ euthanasia—agent, route, concentration, vehicle, dose
   m. ______ administration of toxins, carcinogens, teratogens (as defined by MHC Chemical Hygiene Plan)—agent, route, concentration, vehicle, dose; in case of teratogens, use of fetal tissue
   n. ______ parasites—species, site and route of administration
   o. ______ administration of any controlled substances (drugs classified as such and requiring federal and/or state controlled substance license or registration)—agent, route, concentration, vehicle, dose; if self-administered, how will animals be induced to administer the substance?
   p. ______ other—explain below
III. Occupational Health and Safety Issues and Training

Identify any hazardous agents to which animals will be exposed (pathogenic organisms, carcinogens, toxic chemicals, radioisotopes, etc.) which will consequently require special precautions for humans in contact with the animals or their waste products. You will need to consult with the College Health, Safety, and Environmental Protection Compliance Advisor (Nancy Fratoni) on appropriate procedures to be followed.

Detail here the biosafety procedures to be followed. Indicate if special training for animal care personnel is required.

Have you had the relevant MHC Chemical Hygiene Training? (Provide date of training.)

Detail any other training you have received which would be relevant to the procedures to be undertaken in this proposed project.

IV. Alternatives to the use of vertebrate animals

Have alternatives to the use of vertebrate animals been considered (e.g. films, videotapes, computer simulations, or other models)?

Explain why animals must be used in this project and what will be learned from live animals or animal preparations that could not be learned from the above suggested alternatives.
V. Assurance

As Faculty involved in research and teaching using vertebrate animals, and/or staff and students involved in a research project using vertebrate animals, I (We) certify that:

1. An adequate literature search has been conducted to ensure that the proposed research is not "unnecessarily duplicative" (CFR, 2.31.d.iii).[Applies to faculty/student research projects, not class demonstrations.]

2. Alternatives to the use of animals have been considered, but the educational objective(s) can be accomplished only with the use of animals.

3. The Faculty (staff, student) member has considered alternatives to procedures that may cause more than momentary or slight pain or distress to the animals and has provided a written description of the methods and sources used to determine that alternatives were not available (CFR, 2.31.d.ii).

4. "Discomfort and injury to the animals will be limited to that which is unavoidable in the conduct of scientifically valuable research, and that analgesic, anesthetic, and tranquilizing drugs will be used where indicated and appropriate to minimize pain and discomfort to animals" (CFR, 2.31.iv).

5. "...all scientists, research technicians, animal technicians, and other personnel involved in animal care, treatment, and use, are qualified to perform their duties" (CFR, 2.31.a).

6. Proper care will be provided in accordance with the provisions of the Guide for the Care and Use of Laboratory Animals as amended (Institute of Laboratory Animal Resources, 1996; National Academy Press, 1996).

7. The physical condition of the animals will be monitored on a daily basis, and should their welfare seem in doubt, I(We) will call the Consulting Veterinarian for the College, Dr. Bruce Cutting, 536-2911.

__________________________
Signature of
Principal Investigator/Faculty Sponsor

__________________________
Date

__________________________
Signature of Student Investigator

__________________________
Date

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