***Animal Use Protocol - RESEARCH***

*The use of animals for research is a privilege. Before a protocol to use animals in research is approved, the primary investigator must show that the use of animals is justified, that the project has scientific merit, and that the procedure to which the animals will be submitted will be carried out humanely and in accordance with Canadian Council on Animal Care (CCAC) standards. Approved protocols will be valid for a period of 1 year and may be renewed (with minor revisions if required) in year 2 and 3, with re-application in year 4.*

*Please submit a signed original and an electronic version of the complete application to the Animal Care Coordinator at office AS149 and e-mail to* *tcholach@nwpolytech.ca**.*

|  |
| --- |
| **FOR ANIMAL CARE COMMITTEE USE ONLY**  |
| Animal Use Protocol-Research Number: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Animal Use Protocol – Reseach Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Category of Invasivness: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Date of ACC Final Approval: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Date of Scientific Merit Approval: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

1. **PROJECT INFORMATON**

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| **Title of Research Project (Please give a descriptive title that indicates, in lay terms, the nature of the procedures used)**: |
|  |
| **Course Alignment: (Please indicate which course this proposed research will align with; and please indicate degree of alignment i.e. 1. direct (embedded in course); 2. in-direct (learnings integrated into course materials); 3. ad hoc (casual student involvement); or 4. not aligned (student employment/engagement opportunity).** *[Note: all are good – just need to know for reporting purposes]* |
|  |
| **Course Number:** | **Course Title:**  |
|  |  |
| **Proposed Start Date:** | **Proposed End Date:**  |
|  |  |
| **Which department is this Animal Use Protocol – Research affiliated with?** |
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| **Does this proposed research use or replace an Animal Use Protocol - Research (AUP-R)?**  |
| Check off box: [ ] \*No [ ] Yes List previous AUP-R #:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| \*No (this means you are asking for a new AUP-R to be approved) |

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| **Does this proposed animal use require external approvals?**  |
| Check off box: [ ] Submitted [ ] Pending [ ] Approved [ ] No [ ] Yes - List previous approvals From whom? Status

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| **Attach copy of external approvals:** |
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| **Budget attached? [REQUIRED ELEMENT]** |
| Check off box: [ ] Yes [ ] No – Explain: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  |
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| **Has funding been approved for this study?** |
| Check off box: [ ] Yes [ ] No , applying for funds |
|  |

**Research Funding Source(s): (Please attach relevant portions of the grant proposal)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Source****(insert all in cell below)** | **Amount****(total cash)** | **Amount****(total in-kind)** | **Total Project Cost**  | **Comments** |
| *(e.g. AHT Budget, Bayer Valley Feeds,)*  | *$12,000* | *$2,500* | *$14,500* | *This is an example* |
|  |  |  |  |  |

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| **Peer Review for Scientific Merit of Research Studies has been / will be performed by:** |
| [ ] Granting Agency [ ] Scientific Review Committee [ ] Other (specify): \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
|  |

**NOTE: The results of scientific merit reviews initiated by the investigator must be completed and become part of the AUP application before this AUP can be approved.**

1. **PERSONNEL**

***While persons external to NWP may be the Principal Investigator no UP-R will be approved without an NWP staff member as an Associate Investigator.***

|  |  |  |  |
| --- | --- | --- | --- |
| **Principal Investigator (PI) Name (first and last)** | **Position**  | **Internal: Department****External: Organization** | **Contact Information (E-mail/Phone Number(s)/ After hours contact)** |
|  |  |  |  |
| **Staff Personnel**  | **Associate Principal Investigator(s) (API) or Associate Investigator(s) (AI), Technical Staff/Animal Care Staff, Students)** | **Internal: Department****External: Organization** | **Contact Information (E-mail/Phone Number(s)/ After hours contact)** |
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| **Training and Qualifications of Principal Investigator (in respect to animal handling)** |
|  |
| **Training and Qualifications of personnel listed in protocol (in respect to animal handling)** |
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1. **LAY SUMMARY / PUBLIC RELATIONS**

**This information may be released to the media. Northwestern Polytechnic may need to release this information to public relations to provide information to the public about animal use at NWP. In LAY TERMINOLOGY, please provide concise summaries of the following information. The first 40 words will be submitted to the CCAC in the Animal Use Data Form report.**

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| **Research problem(s) or instructional principles(s) this project addresses (Background, Objectives, Methods)** |
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| --- |
| **Anticipated impact (specific), potential benefits to human and/or animal well-being (Relevance of Research or Instruction) [this should answer the why]** |
|  |

1. **ANIMAL DATA**

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| **For RESEARCH projects, is this a pilot / preliminary study?** |
| Check off box: [ ] \*No [ ] Yes [ ] Other  |

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| **Identify the number and species of animals used in the study** |
| **Species** | **Quantity** | **Gender** | **Housing Area** | **Procedure Room** |
|  |  |  |  |  |
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|  |  |  |  |  |
| **Explain how the total number of animals to be used was determined.** (i.e. number of groups, replicates, etc. Attach a flow chart or table outlining total numbers e.g. 5 animals x 3 treatments x 2 replicates = 30 animals) |
|  |
| **Indicate consideration given to reduce the use of animals.** i.e. minimize numbers and maximize education or research gain. |
|  |

*NOTE: Refer to NWP’s Terms of Reference 5. General 2. Process for Protocol Review e) Amendments to a Protocol for information regarding the process to make amendments to a Animal Use Protocol- Research and animal number increase or decrease.*

1. **ANIMAL MODEL / ALTERNATIVES**

***The Canadian Council on Animal Care requires that explicit reasoning be provided for the selection of an animal model over alternatives.***

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| **Explain the necessity of using animals in this study, and why alternatives would be inappropriate to meet your project.***The CCAC requires more than a simple statement that a replacement alternative is not available.* |
|  |
| **Explain the characteristics of the animal that make the species or strain appropriate for the research, i.e. structural behavioural, physiological, biochemical or other features or considerations.** **Cost may not be used as a justification.** |
|  |
| **Has there been considerations of replacement and reduction alternatives?** |
|  |
| **Indicate any alternatives to animal use that are already incorporated into the project.** |
|  |
| **Provide a description of all the refinements to be employed to protect the animal health and welfare.**  |
|  |
| **Specify the environmental enrichment provisions, i.e. social housing, specific materials, space, objects etc.** Refer to the Canadian Council on Animal Care’s *‘Social & Behavioural Requirements of Experimental Animals’.***(Appendix 2)**, or CCAC Guide to the Care & Use of Experimental Animals. |
|  |

**6. PROCEDURES AND DRUGS / CHEMICALS / BIOLOGICS / ANALGESIC / ANESTHETIC**

**Please fill out appendix**

| **PROCEDURES****Including injection of drugs, chemicals, pharmaceuticals and biologics.** | **DRUGS/CHEMICALS/BIOLOGICALS/ANALGESIC / ANAESTHETIC** |
| --- | --- |
| Drug | Dosage | Route | Frequency | Duration  |
| 1. |  |  |  |  |  |
| 2. |  |  |  |  |  |
| 3. |  |  |  |  |  |
| 4. |  |  |  |  |  |

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| **Identify any pain or distress likely to be associated with the procedure or manipulations. If animals encounter unanticipated pain and/or distress what process will be taken?** |
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| **Please provide justification if anaesthesia or analgesia will not be used.**  |
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| **Indicate any other procedures that may be performed.**  |
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| **List all SOPs (including SOP name and SOP number), laboratory handouts, and additional training used in this laboratory exercise or project.**  |
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| **Give a *sequential* description of the use of animals in this research project.** |
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| **Indicate the category of invasiveness which best describes the protocol:** |
|  [ ] B - Procedures which cause little or no discomfort or stress [ ] C - Procedures which cause minor stress or pain of short duration [ ] D - Procedures which cause moderate to severe distress or discomfort [ ] E - Procedures which cause severe pain near, at, or above the pain tolerance threshold or  un-anesthetized conscious animal |
| **Describe the purpose of animal use (PAU).**  |
| **Check off one (1) item below that best describes the Purpose of Animal Use**  |
|  [ ] PAU 1 - Studies of a fundamental nature in science relating to essential structure or function [ ] PAU 2 - Studies for medical purposes, including veterinary medicine, that relate to human or animal  diseases or disorders [ ] PAU 3 – Studies for regulatory testing of product for the protection of humans, animals, animals or  the environment  [ ] PAU 4 – Studies for the development of products or appliances for human or veterinary medicine [ ] PAU 5 – Education and training of individuals in post-secondary institutions or facilities |

 **7. ANIMAL CARE**

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| **a) List ALL the individuals who will carry out the above procedures and who will handle animals (students, staff). Provide their technical qualifications and relevant experience in performing these procedures.** |
| **Name** | **Procedure(s)to be Performed** | **Qualifications / Experience with these procedures** |
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| **Specify the frequency of observations and methods for monitoring the condition of the animals.** **Refer to the listed procedures, e.g. anaesthesia & surgery, as well as the daily routine observations planned.** |
|  |
| **Specify persons(s) who will be responsible for animal monitoring and post-operative care.**  |
| **Name(s):** |
|  |
| **Explain refinements that have been made to minimize pain, distress and/or discomfort to the animals,** **i.e. modified procedures.** |
|  |

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| **Is normal veterinary care appropriate for animals in this project?** |
|  [ ] Yes [ ] \*No - *Veterinary care is the responsibility of the facilities provided for the research*\*If no, attach specific instructions on any veterinary indications / contra-indications that are on file with the animal facility supervisor in case an emergency should arise. |

***EMERGENCY VETERINARY CARE*** *In the event of an animal health emergency, if contact cannot be made with the listed individuals, the decision of a ACC Veterinarian will be final.*

1. **SOURCE**

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| **Source of Animals** |
|  [ ] Client Owned [ ] Client Donated [ ] Bred [ ] Rescue Facility\*\* [ ] Purchased\*\* [ ] Other\*\*  [ ] Colony / Herd / Stock [ ] Teaching stock\*\* [ ] Wildlife/field studies [approvals required through Centre………..]  |
| \*\* Please specify detail below in table provided  |
| **Species** | **Source/Supplier** | **Address/Location** | **Phone Number** | **Mode of Transportation** |
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1. **END POINTS & FATE OF THE ANIMALS**

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| **Indicate any clinical conditions or abnormalities *expected or that could arise* as a result of the proposed study or research project (e.g. behavioural changes such as increased grooming, vocalization or postural changes, or physical abnormalities such as anorexia, dehydration, diarrhea, etc.)** |
|  |
| **In terms of species-specific behavioural changes and physiological signs, what criteria will trigger the decision to 1. remove an animal from the research project; and or 2. terminate the project?** |
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| **Indicate the fate of the animals following this laboratory exercise:**  |
| **Release back to owner (details):** |  |
| **Sold To:** |  |
| **Donated to:** |  |
| **Humanely euthanized:****(specify method)** If a physical method of euthanasia is to be used, i.e. cervical dislocation, justify its use. |  |
| **Other – specify:** |  |

1. **HAZARD AGENTS AND MATERIALS**

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| **Hazard Agents and Materials - Please list potential Hazards to Animals and Humans**  |
| Biological | [ ] Yes [ ] No | List: |
| Chemical | [ ] Yes [ ] No | List: |
| Carcinogen | [ ] Yes [ ] No | List: |
| Drug | [ ] Yes [ ] No | List: |
| Ionizing radiation  | [ ] Yes [ ] No | List: |
| Non-ionizing radiation  | [ ] Yes [ ] No | List: |
| Other (i.e. allergen) | [ ] Yes [ ] No | List: |
| If yes, please provide approval information: |

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| --- |
| **Declaration**  |
| This information in this application is exact and complete. I assure that all care and use of animals in this proposal will be in accordance with the guidelines and policies of the Canadian Council on Animal Care and those of Northwestern Polytechnic. I shall request the Animal Care Committee’s approval prior to any deviations from this protocol as approved. I understand that this approval is valid for one year and must be approved on an annual basis. AUP form completed by:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Signature of Principal Investigator Date Signed |

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| **FOR ANIMAL CARE COMMITTEE USE ONLY**  |
| This AUP Form has been reviewed by the NWP Animal Care Committee (ACC), and is approved based on the information provided. Signature of NWP Animal Care Committee Chair Date Signed |
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***Animal Use Protocol- Research***

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**APPENDIX 1 CANADIAN COUNCIL ON ANIMAL CARE**

CATEGORIES OF INVASIVENESS IN ANIMAL EXPERIMENTS

*The following list of categories provides possible examples of experimental procedures which are considered to be representative of each category.*

**A. Experiments on most invertebrates or on live isolates.**

 **Possible examples**:

* the use of tissue culture and tissues obtained at necropsy or from the slaughterhouse;
* the use of eggs, protozoa or other single-celled organisms;
* experiments involving containment, incision or other invasive procedures on metazoa.

**Note: Animal Utilization Protocols are not required for projects involving ‘A’ Categories of Invasiveness.**

**B. Experiments which cause little or no discomfort or stress.**

**Possible examples:**

* domestic flocks or herds being maintained in simulated or actual commercial production management systems;
* the short-term and skilful restraint of animals for purposes of observation or physical examination;
* blood sampling (venipuncture only, **not cardiac**);
* injection of material in amounts that will not cause adverse reactions by the following routes: intravenous, subcutaneous, intramuscular, intraperitoneal, or oral, but not intrathoracic or intracardiac (Category C); (or intradermal);
* acute non-survival studies in which the animals are completely anesthetized and do not regain consciousness;
* approved methods of euthanasia following rapid unconsciousness, such as anesthetic overdose, or decapitation preceded by sedation or light anesthesia;
* short periods of food and/or water deprivation equivalent to periods of abstinence in nature;
* treadmill for normal horses;
* digital retrieval of feces from calves, dogs, horses;
* obtaining rumen fluid samples through rumen fistula of cows;
* dip-netting fish;
* weighing fish by mass;
* measuring fish e.g. length, width under anaesthetic;
* bleeding fish under anaesthetic;
* ear treatments/medication;
* implantation of hormone e.g. cattle;
* Rectal and AI for management purposes (not research);
* feeding electrolytes to colostrum deprived calves;
* cannulating teats of cows;
* intramammary infusion of mastitis medications;
* less than ~18 hour fasting period in rodents;
* leg banding;
* colostrum deprivation of calves;
* removing calves from cows at birth;
* clipping < 1 mm. of tail of tadpoles.

**C. Experiments which cause minor stress or pain of short duration.**

*Such procedures should not cause significant changes in the animal's appearance, in physiological parameters such as respiratory or cardiac rate, or fecal or urinary output, or in social responses.*

**Possible examples:**

* cannulation or catheterization or catheterization of blood vessels or body cavities under anesthesia;
* minor surgical procedures under anesthesia, such as biopsies, laparoscopy; short periods of restraint beyond that for simple observation or examination, but consistent with minimal distress;
* short periods of food and/or water deprivation which exceed periods of abstinence in nature;
* behavioural experiments on conscious animals that involve short-term, stressful restraint; exposure to non-lethal levels of drugs or chemicals;
* nose bars in birds;
* wingbanding in birds;
* intravaginal examinations;
* vaginal swabs;
* induction of general anaesthesia in horses;
* intubation;
* periorbital bleeding in pigs without anaesthetic; periorbital bleeding in other species under anaesthetic;
* pesseries in cows and sheep (intravaginally);
* ultrasound (per rectum);
* cervical dislocation of rodents without sedation; also chickens, turtles;
* decapitation of small rabbits and rodents;
* nylon bags incubated in rumen fistulated cattle;
* eartagging;
* intradermal injections (ID injections) unless a significant inflammatory reaction will occur;
* gavage/orogastric tubing; stomach tubing;
* swim mills for fish;
* measurement (length and width) of individual fish without anaesthetic;
* tagging fish under anaesthetic;
* electroshocking fish;
* >24 hour fast for large mammals;
* > 18 hour fast for mice/rats;
* FCA, RIBI, titremax, Quil A if the adjuvant/antigen combination has few deleterious effects;
* castration;
* beak trimming;
* teeth clipping (piglets);
* tattooing;
* removal of calves from dams at birth (no suckling);
* multiple rectal examinations;
* metabolic caging if it is short term and animals are exercised regularly, do not show signs of distress and have olfactory, visual and auditory contact with conspecifics;
* delayed type hypersensitivity;
* Alzec (osmotic) pump;
* microchipping (<2mm diameter);
* euthanasia of young piglets using intracardiac injection of pentobarbital;
* dehorning calves with Lidocaine or other topical.

**NOTE: During or after Category C studies, animals must not show self-mutilation, anorexia, dehydration, hyperactivity, increased recumbency or dormancy, increased vocalization, aggressive-defensive behaviour or demonstrate social withdrawal and self-isolation.**

**D. Experiments which cause moderate to severe distress or discomfort.**

*Procedures used in Category D studies should not cause prolonged or severe clinical distress as may be exhibited by a wide range of clinical signs, such as marked abnormalities in behavioural patterns or attitudes, the absence of grooming, dehydration, abnormal vocalization, prolonged anorexia, circulatory collapse, extreme lethargy or disinclination to move, and clinical sings of severe or advanced local or systemic infection, etc.*

**Possible examples:**

* major surgical procedures conducted under general anesthesia, with subsequent recovery; prolonged (several hours or more) periods of physical restraint;
* indication of behavioural stresses such as maternal deprivation, aggression, predator-prey interactions;
* procedures which cause severe, persistent or irreversible disruption of sensorimotor organization;
* the use of Freund's complete adjuvant (see CCAC Guidelines on Acceptable Immunological Procedures);
* induction of anatomical and physiological abnormalities that will result in pain or distress;
* the exposure of an animal to noxious stimuli from which escape is impossible;
* the production of radiation sickness;
* exposure to drugs or chemicals at levels that impair physiological systems;
* Ascites production;
* creation of transgenic animals before phenotype is known;
* metabolic caging of longer duration or where animals are in isolation;
* subcutaneous xenotransplantations;
* laparotomy e.g. ovariectomy;
* FIA, RIBI, Quil A may be categorized as a “D” until the effects on animal welfare can be recorded;

**E. Procedures which cause severe pain near, at, or above the pain tolerance threshold or unanesthetized conscious animals.**

***This Category of Invasiveness is not necessarily confined to surgical procedures, but may include:***

* exposure to noxious stimuli or agents whose effects are unknown;
* exposure to drugs or chemicals at levels that (may) markedly impair physiological systems and which cause death, severe pain, or extreme distress;
* completely new biomedical experiments which have a high degree of invasiveness;
* behavioural studies about which the effects of the degree of distress are not known;
* use of muscle relaxants or paralytic drugs without anesthetics;
* burn or trauma infliction on unanesthetized animals; a euthanasia method not approved by the CCAC;
* any procedures (e.g. the injection of noxious agents or the induction of severe stress or shock) that will result in pain which approaches the pain tolerance threshold and cannot be relieved by analgesia (e.g. when toxicity testing and experimentally-induced infectious disease studies have death as the endpoint).

***Animal Use Protocol – Research***

**Appendix 2 - CANADIAN COUNCIL ON ANIMAL CARE**

**TEACHING / DISPLAY COMPONENT of the RESEARCH PROJECT (if yes then complete this section)**

*Please attach the course outline,* ***laboratory exercise notes or lab manual(s)*** *and any other relevant information pertaining to animal care and use.*

Comment briefly on:

2. how you are maximizing the educational gain from the animals used.

3. the on-site supervision provided for the participant working on animals during the laboratory.

4. the expected number of participants.

5. the number of participants per animal or group of animals.

6. the participant / instructor ratio.

***Animal Use Protocol- Research***

**Appendix 3 - CANADIAN COUNCIL ON ANIMAL CARE**

**SURGICAL PROCEDURES:**

Provide a description of the preparative regimen which includes:

1. the patient preparation procedures.

2. the details on pain/distress management throughout the project.

**Note: Analgesics should be given to animals prior to recovery from anaesthesia & for a minimum of 24 hours following surgery. Thereafter, the animal(s) will be assessed and if there is continuing pain or distress, analgesics will be continued in conjunction with appropriate care.**

3. the antibiotic to be administered (dosage and route).

4. if applicable, the ventilation procedures.

5. instrumentation of the animal(s), such as IV lines, catheters, etc.

6. the type of monitoring during and following surgery.

7. a brief technical description of the surgical procedure(s).