This form must be completed for the pedagogical merit review required by the McGill University and Affiliated Research Institutes’ *Pedagogical Merit Review Policy for Teaching and Training Using Live Animals*.

Routing: Please submit an electronic copy of this form, with supporting documents, to the Animal Compliance Office, animal.approvals@mcgill.ca, prior to or in parallel with New Animal Use Protocols or Full Renewals submitted in Darwin for teaching and training protocols covered by the policy.

Timing: Please allow 4 months for the pedagogical merit review.

<table>
<thead>
<tr>
<th>Course Instructor:</th>
<th>________________________________</th>
</tr>
</thead>
<tbody>
<tr>
<td>Course Title and Code:</td>
<td>____________________________________</td>
</tr>
<tr>
<td>Animal Use Protocol Number (if assigned):</td>
<td>________________________________</td>
</tr>
<tr>
<td>Animal Species:</td>
<td>___________________ Number of Students (A):</td>
</tr>
<tr>
<td>Number of Students (A):</td>
<td>_______________ Number of Animals (B):</td>
</tr>
<tr>
<td>Number of Animals (B):</td>
<td>___________ Number of students per animal (A÷B):</td>
</tr>
<tr>
<td>Number of Students per Instructor and/or teaching assistant/technician:</td>
<td>_______________</td>
</tr>
</tbody>
</table>

**Please attach the available course outline, syllabus, lab manual

** Below (p.4-5) is a quick guide on how to best answer questions 1-4 using the SMART method, followed by examples showing strong curriculum alignment

1. Outline the objectives of the course and of the section requiring the use of animals. The use of a system such as SMART goals (Specific, Measurable, Attainable, Realistic, and Timely) can facilitate the setting of intended outcomes.

   

2. Briefly describe the procedures used on animals and their sequence.

   

---

**Page 1 of 5**
3. How will students participating in the course component involving live animals be evaluated (lab reports, exam questions, proficiency evaluation, etc.)?

4. How does the proposed animal use achieve the educational objectives of the course and directly benefit the students? Comment on the proposed methodology, choice of animal species and animal numbers. Specify whether the use of live animals is for illustrating scientific principles and/or teaching specific technical skills on live animals.

5. Describe the students’ level and type of existing training at the beginning of the course and the stage and level of the course (e.g., first year, final year; undergraduate, graduate, resident):

6. Describe the level of experience and methods-specific training of the course instructors and/or teaching assistants/technicians:
7. Indicate how the ethical issues and responsibilities associated with animal use for education purposes are addressed with the students:

Details of Research on the 3Rs: Replacement, Reduction and Refinement

The 3Rs tenet (Replacement, Reduction and Refinement) guides scientists on the ethical use of animals in science.

- Replacement refers to methods which avoid or replace the use of animals in situations where animals would otherwise have been used;
- Reduction refers to any strategy that will result in fewer animals being used;
- Refinement refers to the modification of husbandry or experimental procedures to minimize pain and distress.

8. Please list alternatives available (software, simulations, videos, etc.) that would replace, reduce or refine the use of live animals. Please consult the CCAC FAQ document, Section 10 [Where can I find information and resources on replacement alternatives?] for information on alternatives. If alternatives exist, justify why they cannot be used. Justification should include database or literature searches, or curriculum benchmarks in similar institutions. Please provide details.

9. Please provide any additional comments to the attention of the reviewers.
**Quick guide to use the SMART method to answer questions 1-4**

The Pedagogical Review process aims to assess the clear benefit to the use of animals in the course proposed. It evaluates the necessity of using live animals and constructive curriculum alignment between the methods used for teaching/training, those for the evaluation of learning outcomes, and the timing of the given course. This process is in line with the Canadian Council on Animal Care (CCAC) guidelines. Examples from the CCAC of protocols showing evidence of strong constructive curriculum alignment are provided below.

Here are suggestions on how to best answer the questions to provide indices of curriculum alignment

1- **Outline the objectives of the course and of the section requiring the use of animals. The use of a system such as SMART goals (Specific (Q1), Measurable (Q3), Attainable, Realistic, and Timely (Q4)) can facilitate the setting of intended outcomes.**

   • **Specific** – State the specific area targeted for improvement. Explain what is the desired new skill or knowledge targeted through this teaching/training that could not or difficultly be gained without using live animals. Explain precisely how the animals will be used in this process, and why they are instrumental.

2- **Briefly describe the procedures used on animals and their sequence.**

   - Clearly and precisely describe the procedures and involvement of the animals.

3- **How will students participating in the course component involving live animals be evaluated (lab reports, exam questions, proficiency evaluation, etc.)?**

   • **Measurable** – Describe how the new knowledge will be assessed and quantified. Describe the specific method that will be used to assess progress related to the specific skill or knowledge targeted, and how will this new skill/knowledge be evaluated. –Is that new skill/knowledge concretely measurable (i.e. in terms of accuracy, speed, quality) using the specific evaluation method proposed?

4- **How does the proposed animal use achieve the educational objectives of the course and directly benefit the students? Comment on the proposed methodology, choice of animal species and animal numbers. Specify whether the use of live animals is for illustrating scientific principles and/or teaching specific technical skills on live animals.**

   • **Attainable and Realistic** – Describe how this new skill/knowledge is realistically achievable through the teaching/training methods proposed, given the available resources. State how the use of animals is necessary, achievable, and directly related to the proposed learning outcome.

   • **Timely** – Explain how the timing of the use of animals for the proposed learning outcomes is logical in terms of when the skills/knowledge be needed. –Is there much time elapsing between the intended learning and the needed new skills/knowledge, time gap which may impair students’ retention or diminish the usefulness of the proposed teaching/training program? Elaborate on the timing of training in relation to the intended specific learning outcome.

**Examples of proposed protocols showing evidence of strong constructive curriculum alignment**

**Example 1:** A protocol is submitted for an institutional hands-on training course. This training is required before research team members can handle live animals.

   • **Learning outcomes:** The student will be able to safely and humanely handle live mice, and will be able to successfully give a subcutaneous injection to a conscious mouse.

   • **Assessment method:** The student will demonstrate an appropriate handling and injection technique in a conscious mouse.

   • **Learning activities:** Students will handle conscious mice and practice subcutaneous injections.
Example 2: A protocol is submitted for an animal physiology course. This course is part of a Bachelor’s degree in Biology.

- **Learning outcome:** The student will be able to demonstrate certain mechanical and physiological properties of skeletal muscle in frogs. Students will be able to: 1) name, describe, and induce the phases of a muscle twitch; and 2) define and explain the physiological basis of the following: (a) subminimal, minimal, maximal, supramaximal stimuli; (b) latent period; (c) wave summation; (d) tetanus; and (e) muscle fatigue.

- **Assessment method:** A laboratory report and quiz based on the procedures performed by students on a frog muscle.

- **Learning activities:** Students will use a muscle preparation from a pithed frog, placing it in an apparatus and taking a series of measurements. The frog muscle is used in place of mammalian muscle because of its tolerance to temperature change and handling.