

Widener University: Institutional Animal Care and Use Committee

Project Application Form

1. Name and Department of Applicant (faculty member or course instructor):

Students: Carmela Italiano, Trish Bradley, Julie Greenwood

2. Title of Project: The affects of amounts of food consumption on the RQ in species of ectotherms.

3. Is this a new application, revision or renewal?

new application

Date and approval number of last application? n/a

4. If this is a course project, please indicate:

<u>Course Name and Number</u>	<u>Instructors</u>	<u>Estimated Enrollment</u>
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Biology 401, fall 2003

Itzick Vatnick and Bruce Grant

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5. Dates of Project (1 Year):

From: 10-21-03

To: 12-18-03

6A. Statement of qualification of applicant. Provide a biographical statement of the experience and training of applicant for the procedures described below.

All three members of our group have had training both from our professors and the owners of the stores where we purchased our animals on how to house, feed, and clean these ectotherms.

6B. Names and positions of persons (e.g. students) authorized by the applicant to participate in the procedures described below. Also, name the person responsible for instruction in the care and use of laboratory animals of each research participant.

<u>Name</u>	<u>Title</u>	<u>Instruction in Animal Handling by:</u>
Julie Greenwood	student	Dr.'s Grant and Vatnick
Trish Bradley	student	Dr.'s Grant and Vatnick
Carmela Italiano	student	Dr.'s Grant and Vatnick

- 7A. If this is a research project, supply an abstract of the project. Abstract should be written in terms understandable by a non-scientist. Describe the overall purpose of the project and the importance of the research.

Ectotherms are animals that are dependent heavily on their outside surroundings. In order to look at the big question of what the effects of diet is on the respiratory quotient in ectotherms we will look at their oxygen consumption rate and the amount of carbon dioxide released when exhaled in these species. Specifically we will look at how these parameters differ during times of nourishment and times of starvation. The animals will be placed on feeding cycles and placed in metabolic rate analyzers the day after being fed and after being starved for 5 days. We expect to see that the respiratory quotient is higher when the animals are being fed over when they are being starved. It is of interest to us because it is an elaboration to what we have learned in class.

- 7B. If this is a course project, provide a course description. Also, append a copy of the syllabus of the course.

Course Objectives and Description.

(1) You will better understand the evolutionary adaptation of physiology to environment, i.e., the problems that the biophysical extremes of this world impose upon life and the solutions that have evolved in response.

(2) You will understand the process of physiological inquiry which is the scientific method, through which natural phenomena are observed, interpreted, and reported. Through the scientific method one gains an understanding of our natural world and the effects of human activities upon it.

(3) You will improve your cognitive skills at critical thinking and reflective judgement. Through the processes of designing, conducting, and presenting your own course research project, and of reading and critically analyzing published research results to understand the basic ecological and evolutionary principles of physiological design, you will be using and improving your higher level thinking and information processing skills.

8. Give the specific reasons why live animals must be used for this study. Are alternative methods available (e.g. computer simulations, cell or tissue culture)? If so, why are they not used?

The option of live animals was selected because there is not a computer simulation available to us covering this topic and laboratory animals are readily available.

9A. Animals to be used in this protocol. Numbers used may be estimates. If needed, base estimates on usage in previous years.

<u>Species/Strain</u>	<u>No. / Year</u>	<u>Sex</u>	<u>Age</u>	<u>Weight</u>
Red Ear Slider Turtles	4	M/F	juvenile	8-9 gm
Ribbon Snakes	3	M/F	juvenile	3-6 gm
Western Fence Lizards	4	M/F	adult	8-12 gm

9B. How are the animals obtained? Where and how are they housed?

They were acquired at a local pet store. They are housed in Kirkbride 503 laboratory in glass aquariums with mesh wire lids.

10. Provide complete details on each procedure involving the species listed under section 9A. The description of each procedure should supply the category of animal utilization (see appendix). If drugs or anesthetics are to be used, provide dosage and duration of treatment. As appropriate, identify all aspects of post-procedural care, including euthanasia, and describe procedures for identification and intervention in the care and use of animals if painful or stressful outcomes are anticipated. For course projects, refer to the course syllabus as possible.

The steps taken for each species is very similar. The animals will be caged and fed as instructed to do so. The lizards and snakes will be fed every 3 days and the turtles will be fed everyday. The day after feeding, the animals will be removed from their cages, weighed, placed in metabolic chambers for approximately four hours and then returned immediately to their cage. Also five days after their feedings they will be removed once again and placed in the chamber once again for four more hours. Once this cycle is complete, they will be fed immediately afterwards. The animals will be kept in Kirkbride and fed on a regular feeding schedule until the end of our project. At the end of the project they will be given away as pets to students of the Biology 401 pets. These students will be trained in care for these pets before they are released into their hands.

11. I hereby certify that the above information is accurate. The care and use of animals proposed will abide by the National Research Council guidelines published in the *Guide for the Care and Use of Laboratory Animals*.

<u>Name</u>	<u>Title</u>
Julie Greenwood	student
Trish Bradley	student
Carmela Italiano	student

The signature of the Associate Dean of Science is required.

Name Marc Brodtkin Title Associate Dean of Science

Signature _____ Date _____

APPENDIX

CATEGORIES OF USE LEVEL FOR APPLICATIONS UTILIZING VERTEBRATE ANIMALS IN RESEARCH TESTING AND INSTRUCTION.

CATEGORY A - Experiments on vertebrate animal species that are expected to produce little or no discomfort.

Mere holding of animals captive for experimental purposes; simple procedures such as injections of relatively harmless substances; blood sampling; physical examinations; food/water deprivation for short periods (a few hours); standard methods of euthanasia that induce rapid unconsciousness, such as anesthetic overdose or decapitation preceded by sedation or light anesthesia.

CATEGORY B - Experiments that involve some minor stress or pain (short-duration pain) to vertebrate animal species.

Experiments on completely anesthetized animals which do not regain consciousness; with anesthesia and subsequent recovery, exposure of blood vessels or implantation of chronic catheters behavioral experiments on awake animals that involve short-term stressful restraint; immunization employing Freund's Adjuvant; noxious stimuli from which escape is possible; major surgical procedures under anesthesia that result in post-operative discomfort that is treated with analgesics. Category B procedures incur additional concern in proportion to the degree and duration of unavoidable stress or discomfort.

CATEGORY C - Experiments that involve significant but unavoidable stress or pain to vertebrate animal species.

Deliberate induction of behavioral stress in order to test its effect; major surgical procedures under anesthesia that result in significant post-operative discomfort that is not treated with analgesics; induction of an anatomical or physiological deficit that will result in pain or distress; application of noxious stimuli from which escape is impossible for prolonged periods (up to several hours or more) or physical restraint; maternal deprivation with substitution of punitive surrogates; induction of aggressive behavior leading to self-mutilation or intra-species aggression; procedures that produce pain in which anesthetics are not used, such as toxicity testing with death as an end point, production of radiation sickness, certain injections, and stress and shock research that would result in pain approaching the pain tolerance threshold, i.e. the point at which intense emotional reactions occur. Category C experiments present an explicit responsibility on the investigator to explore alternative designs to ensure that animal distress is minimized or eliminated.

CATEGORY D - Procedures that involve inflicting severe pain near, at, or above the pain tolerance threshold of unanesthetized conscious animals.

Use of muscle relaxants or paralytic drugs such as succinyl choline or other curariform drugs used alone or surgical restraint without the use of anesthetics; severe burn or trauma infliction on unanesthetized animals; attempts to induce psychotic-like behavior; killing by use of microwave ovens designed for domestic kitchens or by strychnine; inescapably severe stress or terminal stress.