



Animal Research Training Guidelines

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First Approved by:	UOW Animal Ethics Committee		
Custodian title & e-mail address:	Research Services Office – Animal ethics division RSO-aec@uow.edu.au		
Author:	Sarah Toole, Amanda Guy Chresby		
Responsible Division & Unit:	Research Services Office, Animal Ethics Unit.		
Supporting documents, procedures & forms:	Animal Ethics Committee Standard Operating Procedures available at https://www.uow.edu.au/research/forms/index.html		
Relevant Legislation & External Documents:	The Australian Code for the Care and Use of animals for scientific purposes 8 th Edition 2013. Best Practice Methodology in the Care and use of animals for scientific purposes 2017		
Audience:	All researchers that are involved in the use or observation of animals in teaching, research and conservation/marine biology studies. All personnel named on an Animal Research Authority All members of the UOW Animal Ethics Committee		



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1 Introduction/Background

The Australian Code for the Care and Use of Animals for Scientific purposes, 8th Edition, 2013 Contains a number of clauses as outlined below that relate to the requirement of institutions to provide training programs for all those involved in the Care and Use of animals for Scientific purposes and the responsibility of investigators to undertake education, training and competency assessment as per institutional guidelines.

2.1.8

Institutions must ensure that all people involved in the care and use of animals understand their responsibilities and the requirements of the Code are competent for the procedures they perform, or are under the direct supervision of a person who is competent to perform the procedures, and have access to appropriate education programs and resources, by:

- (i) ensuring that investigators are well informed of their responsibilities under the Code and their legal responsibilities
- (ii) providing adequate resources for appropriate education, training, and assessment of competence of investigators, and certification of such competence to the satisfaction of the AEC.

The UOW AEC also states in its terms of reference that it must ensure training programs are in place to ensure adequate training and competency assessment of all those involved in the assessment, care and use of animals used in research and teaching activities.

2 Scope/Purpose

These guidelines present training requirements for University of Wollongong animal users (including project supervisors, investigators, post doc fellows, research staff and graduate students, technical officers and animal facility staff. They have been developed to ensure that all those involved in the use and care of animals, on UOW approved Animal Ethics protocols, have access to detailed information about the requirement for training, the scope of training available and the limitations or restrictions placed on training with live animals.

The purpose of the UOW Animal User training program is to ensure adequate training of all investigators, supervisors and animal care staff to ensure that sound humane research is carried out by all UOW investigators, and that best practice methodology is used in carrying out this research.

The training program will consist of core modules and supplementary modules. Core modules will apply to all animal users and will cover the training needed to meet the legislative requirements relevant to all users under the code. Relevant supplementary modules may be added to meet the needs of investigators, supervisors and animal care staff from different disciplines.

General Guideline: All personnel involved with the use of animals in research, teaching and testing must be adequately trained in the principles of animal care and welfare and the ethical issues involved in animal use.



University of Wollongong must strive through the training program to sustain a culture of respect for animal life, and to foster a philosophy of compassion and respect for the animals used for scientific purposes.

The training program must adhere to the tenets of the 3R's – using replacement of animals, reduction of animals used and refinement of use in all aspects of the training program. This adherence to the 3R's may in some circumstances prevent investigators from being trained in certain technical procedures, particularly where skilled technical staff, already competent in such procedures, are available to perform those tasks proficiently for the research team.

As such there will be core modules delivered to all participants in each research field. Whilst procedure specific training will be targeted to the justified needs of the individual users within the institution.

Sections of the training program must also be suitable for the education of members of animal care committees and project supervisors who will need to participate in core modules on ethics, regulations and the principles of the use of animals for scientific research.

3 Definitions

Word/Term	Definition (with examples if required)
AEC	Animal Ethics Committee
AWO	Animal Welfare Officer
PPE	Personal Protective Equipment
SOP	Standard Operating Procedure
SWP	Safe Work Procedure
Trainee	Person undertaking or receiving the training
Trainer	Person providing the training

4 Core Modules: Animal Ethics and Welfare Training (Theory)

The core modules in Animal Ethics and Welfare Training are a requirement for all new and continuing researchers at UOW that use or observe live vertebrate animals and cephalopods in their research activities.

There are two streams to the core modules:

Stream A: New researcher or student training

Stream B: Training for Chief Investigators and Alternate Chief Investigators & continuing and experienced researchers.



Stream A: New researcher or student training in Animal Ethics and Welfare

Stream A consists of a compulsory online moodle module which must be completed prior to commencing any unsupervised fieldwork or animal laboratory based activities. It must also be completed prior to being granted personal swipe card access to laboratory based animal facilities.

Stream A also has a compulsory face to face seminar/training session which is run once each semester for new researchers or students. Animal research work may commence prior to attending the face to face seminar but this must be completed within 6 months of commencing animal research activities.

The objectives of Stream A are:

- provide animal research personnel with the knowledge required to ensure compliance with the Australian and NSW legislation regarding the animal use in research and teaching.
- provide an overview of the different ethical perspectives on animal use in research and teaching.
- provide information on how to ensure animal use is humane.
- ensure an understanding of the guiding principles of all animal research – the 3R's (Replacement, Reduction and Refinement)
- discuss the role and function of the UOW Animal Ethics committee
- provide an overview of the UOW Animal Ethics administrative processes
- provision of information regarding the assessment and recognition of pain and distress in various animal species and how this pain or distress may be alleviated or minimised to ensure the research is humane, ethical and scientifically valid.
- discussion on the development and use of humane /welfare endpoints in conjunction with scientific endpoints.
- provision of resources that may be of use to researchers when planning their research projects such as access to UOW Standard Operating Procedures, links to websites providing information on 3R's and alternatives, animal models, electronic project design applications, statistical resources and various welfare and species specific resources/references.

Stream B: Training for Chief Investigators and Alternate Chief Investigators, Student supervisors and Continuing and Experienced researchers.

Stream B consists of an online module only which is a legislative, administrative and refresher training module.

Stream B does not have a face to face component however all researchers are welcome to attend the face to face component.

The objectives of Stream B are:

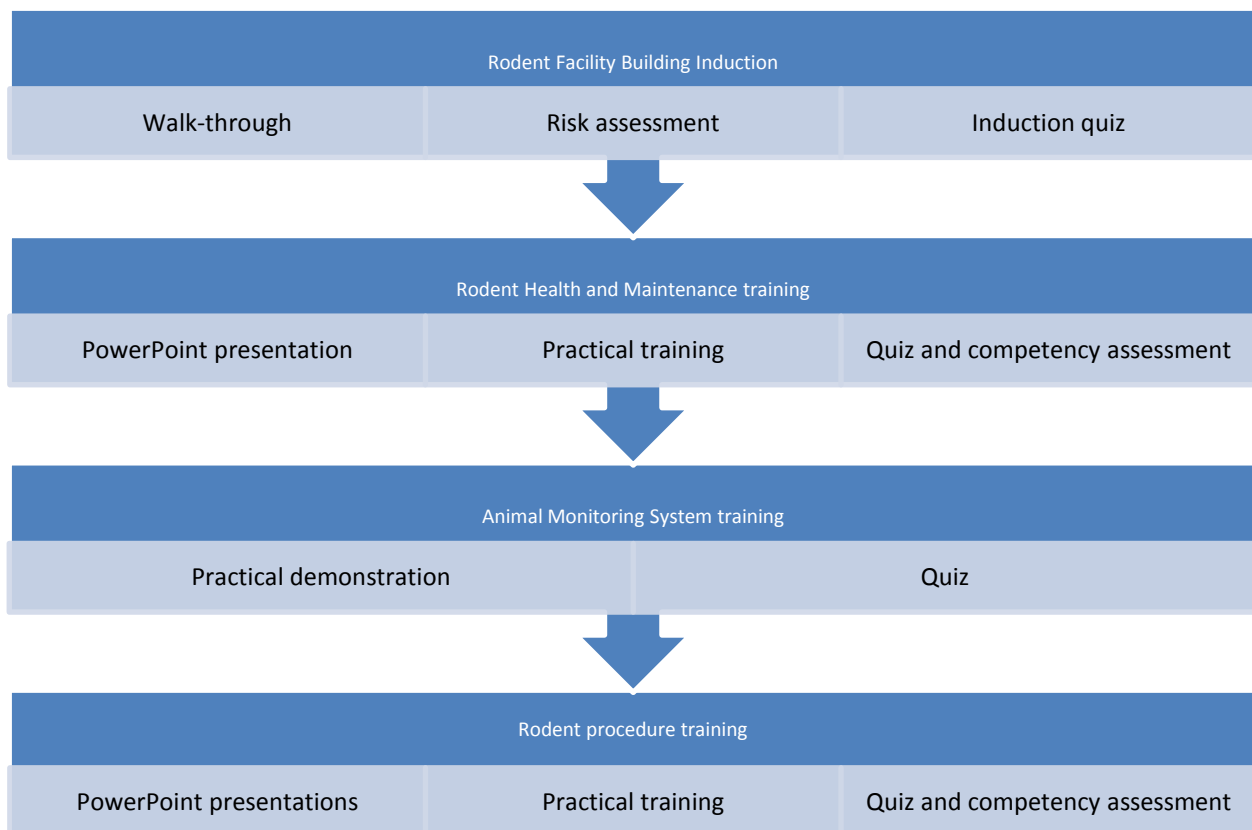
- provide animal research personnel with the knowledge required to ensure compliance with the Australian and NSW legislation regarding animal use in research and teaching, placing emphasis on the responsibilities of researchers, Chief and alternate investigators, as well as any changes /updates to legislation.
- provide training in UOW Animal Ethics Committee administrative processes.



- training in the use of electronic animal monitoring and ethics administration databases.
- provision of information regarding the assessment and recognition of pain and distress in various animal species and how this pain or distress may be alleviated or minimised to ensure the research is humane, ethical and scientifically valid.
- discussion on the development and use of humane /welfare endpoints in conjunction with scientific endpoints.
- provision of resources that may be of use to researchers when planning research projects such as access to UOW Standard Operating procedures, links to websites providing information on 3R's and alternatives, animal models, electronic project design applications, statistical resources and various welfare and species specific resources/references.

5 Rodent Facility Induction and Training Processes

Flowchart



Building Induction

All people working within the rodent facility must attend a building induction. This includes people assisting with procedures who are not necessarily handling animals. The purpose of the building induction is to



demonstrate the safety aspects of the building, such as emergency exits and fire extinguisher locations; as well as inform the inductee of relevant hygiene, PPE, SWPs and SOPs that they must follow while working in the facility.

Rodent Health and Maintenance Training

All biomedical researchers working with rodents must undertake training in laboratory rodent health and welfare before commencing training in the laboratory animal procedures required to be conducted under their experimental protocol.

The compulsory Health and Maintenance training stream is specific to either mice or rats and covers theory in aspects such as:

- Rodent physiology
- Common laboratory strains
- Reproductive cycle and gender differentiation
- Signs of normal and ill health
- Normal and abnormal behaviour
- Environmental enrichment
- Reporting adverse events

Rodent Handling Training

In addition to the above training, all researchers involved in handling and restraining rodents for procedures or for assessing health and welfare during routine monitoring must undergo species-specific Rodent Handling and Restraint training. This process covers the theoretical and practical aspects of effectively handling rodents in a manner that has minimal impact on the animals and is safe for the operator. All handling and restraint training first begins with a theory session about basic handling principles and techniques, followed by a practical session with animal cadavers and live animals. Practical sessions may be conducted individually or in small groups of a maximum of 3 trainees per trainer. The number of training sessions required is dependent on the trainee, and training sessions are continually conducted until the trainee attains competence. Competence will be assessed formally by the Animal Welfare Officer and a certificate will be issued.

Rodent Procedure Training

In addition to the above training, all researchers required to perform laboratory procedures on their animals must undergo species-specific procedure training. Common laboratory procedures include, but are not limited to: injections, blood collection techniques, and tissue sampling. The theory component of procedure training is specific to each procedure and comprises of PowerPoint presentations and video tutorials. This is followed by practical training using an animal cadaver before moving on to procedures using live animals. Invasive techniques such as injections and blood collection begin by using anaesthetised live animals whenever feasible before training on conscious animals. All theoretical and practical components of procedure training are conducted individually and not in groups to ensure maximum training success and retention of information. The number of training sessions required is dependent on the trainee, and training sessions are continually conducted until the trainee attains competence.

Surgical training is provided on an as-needed basis and is customised to the type of surgery required. Surgical training includes aspects such as aseptic technique in order to prevent infections, and information



regarding the correct surgical methods to minimise tissue trauma and promote healing. Training in invasive surgeries is always firstly performed on a cadaver, before moving on to non-recovery surgeries once the trainee becomes more proficient. All theoretical and practical components of surgical training are conducted individually and not in groups to ensure maximum training success and retention of information. The number of training sessions required is dependent on the trainee, and training sessions are continually conducted until the trainee attains competence.

Competence will be assessed formally by the Animal Welfare Officer. Trainees cannot commence carrying out procedures or surgeries independently until they have received their certificate of competence.

Rodent Euthanasia Training

All researchers responsible for the checking of rodents or for performing animal procedures must undertake training in the method of euthanasia that is approved for their experimental protocol. This is to ensure that animals can be euthanased in a safe and humane manner in the event that unexpected animal illness or injury occurs after hours; or for tissue collection at the completion of the experiment. Training animals are only used for euthanasia training when they have reached their endpoint or maximum holding duration, and as such, animals are not euthanased solely for the purpose of euthanasia training. It is possible to use experimental animals for euthanasia training purposes if they have reached their experimental endpoint and only if the process of using the animals for training does not affect the experimental outcome. Rodent euthanasia training first begins with a theory session regarding the technique, followed by a practical session with live animals. This format may vary depending on the euthanasia technique employed. Practical sessions may be conducted individually or in small groups of a maximum of 2 trainees per trainer. Competency assessment can be performed by the Animal Technicians in lieu of the Animal Welfare Officer in an effort to minimise the number of animals used.

Provision of Training

Training of students and researchers in common laboratory rodent techniques is provided by qualified UOW Animal Technicians. Training in invasive surgical techniques is provided by the UOW AWO who is also a registered Veterinarian. These trainers are ultimately responsible for the training animals under their care, and are better able to recognise signs of animal distress and the impact of procedures on the animals during the training process due to their inherent skills and credentials. This also allows for consistency in teaching methods and ensures that procedures are taught in accordance to UOW SOPs and policies. The AWO and Animal Technicians remain up to date in the latest laboratory animal techniques through networking and conferences and are able to refine techniques and minimise animal impact accordingly.

In the case of trainees requiring training in specialised techniques that are unfamiliar to the Animal Technicians or AWO, provisions may be made for an experienced researcher to provide the training. This must first be approved by the AEC after the trainer provides proof of their competence and knowledge in the technique either through previous qualifications or experience. Once approved, the training process must be supervised by the AWO or Animal Technicians to ensure compliance is maintained to the UOW training protocol.

Justification of Training

Training in rodent laboratory procedures can only be provided to trainees who have a demonstrated requirement to perform the procedure as part of their experiment. Trainees cannot be taught any animal procedures that are not approved under their protocol. The procedures must be required to be performed on multiple animals or for multiple times in order to justify training, i.e.: tail pricking for glucose tolerance testing or injection of medical treatments. The welfare cost to animals used for training must not exceed the requirement for training. For example, a person requiring to do a single IV injection on four animals cannot justify needful training as it requires more than four single IV injections to be conducted during the training



and competency assessment process; therefore the welfare cost to the training animals exceeds the requirement for training. In all cases consideration must be given to enlisting Animal Facility Technical Officers or experienced researchers to perform laboratory animal techniques in place of inexperienced students in an effort to eliminate unnecessary training and to minimise the negative impact on animal welfare.

If at any time during the training process the trainee is failing to meet the standard required for competency assessment after an adequate amount of training sessions, training will cease and alternatives will be investigated by the AWO and/or AEC.

Experienced Researchers

Cases may arise where an experienced trainee commences employment or study at UOW and must undertake compulsory training in techniques of which they are already proficient. These trainees must provide proof of proficiency to the AWO and a personalised training and competency assessment programme will be drafted. This may include the trainee progressing with the current UOW rodent training programme in order to bring their skills up to the standard required; or the trainee demonstrating their skills for the AWO in lieu of the training process.

The Competency Assessment Process

Trainees that have completed their training in rodent procedures must first undergo the competency assessment process before being able to work alone. The AWO facilitates the competency assessment by observing the trainee performing the required procedures and then determines whether or not the procedure is being conducted in a safe and accurate manner with minimal distress to the animal. The trainee is questioned by the AWO during the competency assessment process about different components of the procedure in an effort to establish whether or not they have an understanding of the theoretical background of the procedure. The trainee must also undertake an online quiz specific to the procedure before the competency assessment and they must pass with a score of 100% in order to contribute towards the competency assessment process.

Once a trainee has successfully gained competency in a procedure they are then allowed to perform that procedure unsupervised in accordance with UOW and AEC SOPs.

6 Aquatic animal Biomedical Researchers Training & Assessment

(This section will be completed prior to the arrival of any aquatic animals such as Xenopus or Zebrafish at UOW in 2020) It will be similar to the rodent training requirements with species specific theory modules as well as practical training and assessment).

7 Ecological Research Facility User Training & Assessment

All ERC users including volunteers must undergo an induction which includes the completion of an online moodle module and quiz, followed by a face to face induction with an ERC staff member. Upon completion of the induction process the inductee must then complete the induction checklist on SharePoint before approval for access is given. The induction includes information on:

- ERC access procedures and security
- hygiene practices



- emergency evacuation procedures and location of fire extinguishers and blankets, defibrillator, first aid kits and EpiPen
- location and booking of equipment and facilities
- restricted access zones

Due to the highly varied nature of animal research at the ERC, specific research group inductions are also required. These are carried out by the research group supervisor. The main animal research groups at the ERC work with frogs and fish. The head of each research group is responsible for inductions unless these tasks are specifically delegated to other members of the research team or facility staff. These inductions should include specific instructions relating to the cleaning and maintenance of specific housing systems (eg marine or fresh water tank systems) along with training in the routine health, maintenance, capture and handling of those animals.

Training of research personnel and technical officers should also be provided in the recognition of common disease states, species specific euthanasia techniques and post mortem and pathology sample collection for disease or unexpected death investigation.

8 B35 Fish lab Training & Assessment

All training in the B35 fish lab is conducted by the head of that research laboratory. Researchers must be assessed by the AWO in procedures involving removal of the fish from the tank for weighing, measuring, tagging, anaesthesia and euthanasia prior to conducting these without supervision by a qualified person.

A log book/diary of all training undertaken must be kept and made available to the AWO at the time of the competency assessment.

9 Wildlife field based researcher Training & Assessment

Due to the varied nature of wildlife work all practical training is conducted by the project supervisor or their authorised delegate that is experienced and competent in the approved techniques/procedures. It is the ultimate responsibility of the Principal Investigator to ensure that the training has equipped the student or incoming researcher with the skills necessary to ensure they are able to perform their fieldwork with minimal impact on target and non-target species. There must be plans in place to ensure the timely treatment or humane euthanasia of any target or non-target species that are injured in the course of the fieldwork activities.

Where the PI is delegating responsibility for the training and assessment of the student or researcher they must ensure that the trainer has the necessary skills to adequately prepare the student or researcher for independent unsupervised activities in the field and that this training fits with current best practice techniques.

Proof of training in the form of letters, certificates or logbooks should be kept and made available to the AEC/AWO when required. Supervisors or trainers should provide students/researchers with a certificate of competency or equivalent at the completion of the training and assessment period and a copy of this must be supplied to the AEC when approval is sought from the AEC for projects which will use this skill. It is understood that not all training external to the university will have certificates of competency provided. For example, on the job training for consultants or overseas training are unlikely to have documentation. Proof may therefore be in the form of reports, scientific papers etc where the researcher clearly undertook the skill in the field.



Training in wildlife skills.

Where approval from AEC is given for training for undergraduate students in basic wildlife monitoring and surveying, the academic should ensure that students receive appropriate training in animal welfare issues for the technique for which they are being trained. It is best if the training experience follows a standard operating procedure or published standard methodology. Students do not need to be supervised for observation measurements; however, students should be supervised at all times where handling of animals is being undertaken.

Training in basic handling, trapping or surveying which may be undertaken as an undergraduate student or even as a hobby does not need proof of training. Proof of competency/training is only required for invasive techniques where a higher level of skill is required. The following is a guide to where competency proof is required. However, in all of these cases, the PI should ensure that the student/researcher is capable of collecting valid information with their current skills.

Examples of techniques that do not require certificates	Examples of more invasive techniques which require certificates	
Bird surveying and identification using binoculars, scopes etc. This includes call playback.	Mist netting or cannon netting birds (this training is already monitored by the ABBBS so this would suffice as proof of level of competency)	
Auditory surveys of frogs	Banding birds (this training is already monitored by the ABBBS so this would suffice as proof of level of competency)	
Frog triangulation and identification	Pit-tagging animals	
Spotlighting of arboreal or large mammals	Bleeding or other invasive technique of any animal.	
Elliott trapping or pitfall trapping for small mammals and lizards under supervision	Independent trapping of small mammals and lizards	

10 Animal Facility Technical Officer Training

Animal facility Technical Officers must be provided with opportunities to further their knowledge in the care, welfare and handling of the species for which provide routine husbandry and care. When new species are located on campus, training should be provided in the biology, husbandry, care and handling of this species, as well as indicators of disease and distress in the species. This training will be facilitated by the AWO but may be provided by the project leader, particularly with native and wildlife species.

Animal facility technical officers must be supported by SMAH to attend relevant conferences or seminars.

The Animal Welfare Officer will also identify training opportunities for Animal facility technical officers and provide training in practical procedures such as minor medical and surgical procedures where there is a demand for those skills on UOW research projects.



The availability of trained technical officers in medical and surgical procedures can contribute to the 3R's by ensuring best practice techniques are performed for research projects where the skills required need a higher degree of competency and proficiency than that which may be maintained by researchers that perform procedures infrequently.

11 Roles & Responsibilities

AEC – the Animal ethics committee has a requirement under the Code to undertake monitoring of all animal research protocols for which they have granted approval. For research on site at UOW this monitoring is regularly performed by the AWO. The AEC also conducts routine announced and unannounced inspections of all laboratory facilities. The AEC must also monitor fieldwork research activities for which they have granted approval. The AEC may delegate monitoring of these fieldwork activities to the institutions AWO who will undertake announced and at times unannounced visit to fieldwork sites for this purpose. The AEC will also request photographic and video recording of fieldwork protocols be provided by the research team, particularly when new traps, or techniques are being performed.

AEC must ensure that suitable training programs are in place to ensure all investigators are adequately trained and aware of their responsibilities prior to undertaking unsupervised animal research activities.

AWO is responsible for ensuring that all researchers and technical staff working in laboratory facilities have access to comprehensive practical training in animal handling, welfare assessment, and the alleviation of pain, suffering and distress.

The AWO must also ensure researchers have access to training in commonly performed laboratory techniques such as the administration of substances when the need for such training is justified.

The AWO will facilitate or provide training in more advanced techniques such as anaesthesia, and surgical techniques to technical officers, and researchers on an as needed basis.

The AWO will also facilitate or provided training to marine and wildlife workers on minor surgical techniques whenever possible. eg microchipping/tagging.

Principal investigators – are responsible for ensuring that all investigators on approved protocols have been certified as competent in all procedures that they will perform unsupervised for both laboratory based and fieldwork based protocols. Where independent competency assessment is performed (ie AWO assessment of laboratory based procedures) the PI will be provided with a copy of the training record and competency assessment).

Animal facility Technical co-ordinator – The animal facility technical co-ordinator will ensure all researchers have access to building induction and safety training, as well as training in the use of any electronic databases and animal monitoring systems in use in the facilities. The animal facility technical co-ordinator must also ensure technical officers have access to training and continuing education on an ongoing basis.

Animal facility Technical officers. - animal facility technical officers will provide training to researchers in the routine husbandry, care and handling of animals in the facilities in which they work. They may also provide training in the restraint, euthanasia, anaesthesia, collection of blood and administration of substances to laboratory animals if they themselves are certified as competent in these procedures by the AWO.



12 Version Control and Change History

Version Control	Date Effective	Approved By	Amendment
1	10 March 2018	<UoW AEC UoW AHUG	
2			