



Flinders University

Animal Ethics Online Training



 **Flinders**
UNIVERSITY
Animal
Welfare
Committee

The Emergence of Research Ethics



The emergence of research ethics dates back to the **Nuremberg Trials** for war crimes that followed WWII . During these trials there were revelations of unethical experiments involving human prisoners.

After the trials the first code of ethical conduct of research was established . This code was adopted by the United Nations in 1946. This was followed by the Declaration of Helsinki which was first adopted by the World Medical Association in June 1964.

From this beginning a worldwide context of research ethics emerged including consideration of the ethical conduct of experimentation using animals. The emergence of the **3Rs** as key ethical principles in the use of animals came from scientists Russel & Birch in *The Principles of Humane Experimental Technique* published in 1959. The 3Rs in animal welfare ethics consist of **replacement, reduction and refinement**. Where possible we should replace animals with alternatives, reduce the numbers of animals used and refine projects to reduce negative welfare impact in teaching and research. These principles are widely accepted & practised as an ethical framework for the use of animals in research.


The Research Context in Australia



The welfare of animals in Australia is protected by state government legislation. In **South Australia**, this is the *Animal Welfare Act 1985*. The use of animals in teaching and research is regulated by this Act and it is illegal to use animals for these purposes without a licence.

Teaching and research using animals must also be in accordance with the **national guidelines** = *Australian code for the care and use of animals for scientific purposes, 8th edition, 2013*.

Both the Act and *Australian Code* require any teaching and research, involving vertebrates and cephalopods, to be authorised and supervised by an Animal Ethics Committee. At Flinders University, our ethics body is called the **Animal Welfare Committee (AWC)**.


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Animal Ethics


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 Animal Welfare Officer

For further advice, contact
Animal Welfare Committee (AWC)
 Executive Officer
animal.welfare@flinders.edu.au
 P +61 (0) 8 8201 5962

Quick Links

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AWC Webpage (= Animal Ethics website)

http://www.flinders.edu.au/research/researcher-support/ebi/animal-ethics/animal-ethics_home.cfm

Check our and **bookmark** the Animal Ethics website on the Flinders University website. The website contains information regarding what type of work requires animal ethics approval, how do you apply for animal ethics, how do you manage an approved project, where can you get further animal ethics education or training, who to contact if you have any animal related questions or enquirers, and much more. This should be the first place you go if you are seeking information regarding animal ethics at Flinders University.

Australian Code for the Care and Use of Animals for Scientific Purposes (2013)

The *Code* provides the Australian scientific community with an ethical framework to guide decisions and actions that relate to the welfare of animals involved in scientific activities. These include purposes for acquiring, developing and demonstrating knowledge or techniques in any area of science. The *Code* covers animals involved in research, teaching, field trials, product testing, diagnosis, the production of biological products and environmental studies. **All non-human vertebrates (fish, amphibians, reptiles, birds and mammals) and cephalopods (octopi, squid and cuttlefish) are covered by the Code. In addition, you must obtain animal ethics approval to use certain groups of decapod crustaceans at Flinders University.** This definition encompasses domestic animals, purpose-bred animals, livestock and wildlife. It applies throughout any animal's involvement, including acquisition, transport, breeding, housing, management, during projects and the provisions for the animals at the completion of their use.

The *Code* strongly emphasises and describes the responsibilities of institutions, researchers, animal carers, and animal ethics committees.

It is essential that you read the *Code* and are familiar with its contents, especially Section 2, which describes your responsibilities.

You can find and download the *Code* from the AWC website at:

<http://www.flinders.edu.au/research/researcher-support/ebi/animal-ethics/about.cfm>



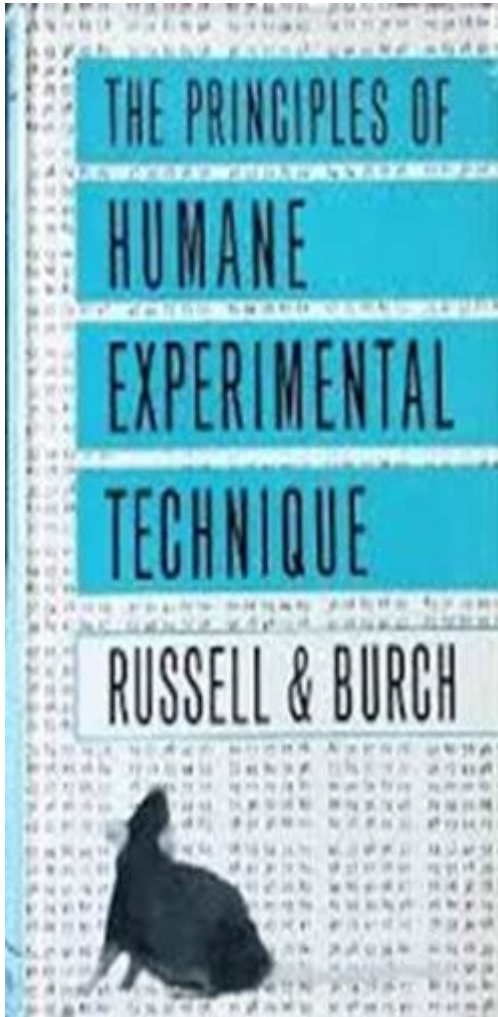
Governing Principle



A governing principle of the *Australian Code* is **respect** for animals. We do this by:

- Using animals only when justified,
- Supporting the wellbeing of animals,
- Avoiding or minimising harm, distress and pain,
- Exhibiting high standards of scientific integrity, and
- Framing the design and conduct of research with the 3Rs (Replacement, Reduction & Refinement).

The 3Rs



Replacement - Use alternatives to animals where possible (such as computer models or simulations). When planning your project ensure you have conducted a thorough literature search to identify alternatives to animal use. Check out the *Altweb - global clearinghouse for information on alternatives to animal testing* provided by the Johns Hopkins - Bloomberg School of Public Health. See: www.altweb.jhsph.edu

Search engines exist for PubMed which provide animal alternative search strategies, one of these, designed for biomedical research and testing includes: <http://toxnet.nlm.gov/altbib.html>

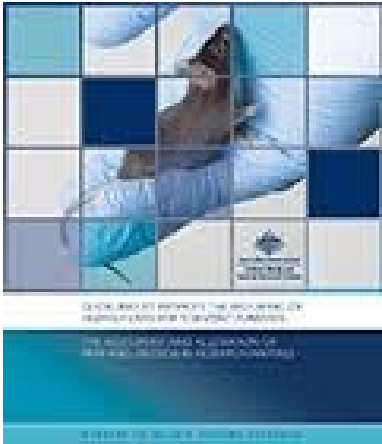
Also, consider other options **such as** existing epidemiological data, computer modelling/simulation, use of cadavers and models, or actual clinical cases.

Reduction - Where the use of an alternative is not possible, use the least possible animals while maintaining scientific integrity. Good experimental design and access to statistical expertise is vital in determining adequate sample sizes in experiments. Remember, a sample size that is too small may be even worse than using too many animals if experimental results become invalid because of a lack of statistical power. Such problems can result in animals being wasted in projects which can't be completed or published. The work may then need to be repeated using more animals.

Refinement - Refinement involves designing and implementing strategies to reduce welfare impact. Good refinement practices use animal management methods, technical procedures, and competent personnel to reduce animal suffering and distress. Things to think about in this category **include**:

- Anaesthetising animals with an agent that provides smooth induction with recovery,
- Providing post-operative pain relief,
- Ensuring the innate behavioural and health needs of animals are met in their everyday living arrangements,
- Personnel who handle animals or conduct procedures must be trained and deemed competent before work begins,
- If animals are to be handled, it is sensible to carefully condition them to the presence of people and the procedures they will experience,
- Provide effective pain relief and up to date anaesthetic regimes, and
- Establish clinical monitoring criteria that can be used to identify intervention points and provide humane endpoints for animals.

The 3Rs



An important resource for seeking ideas regarding management, techniques/procedures and drugs that can assist in **refinement** are the **NHMRC *Guidelines to promote the wellbeing of animals used for scientific purposes***. Check this out on the AWC "Further Information and Links" webpage at: <http://www.flinders.edu.au/research/researcher-support/ebi/animal-ethics/resources/links.cfm>

The NHMRC *Guidelines* are very helpful because unlike the *Code* the *Guidelines* give specific and detailed examples of refinement methods.

The Animal Facility Manager, the Animal Welfare Officer (AWO), or your research supervisor can also assist you with identifying and implementing the 3Rs in your projects. Seek out their help early in project development.

SOPs

Standard Operating Procedures (SOP) and **Safe Work Method Statements (SWMS)** are an invaluable resource. Any procedures described in a SOP or SWMS doesn't need to be detailed in your animal ethics application, and instead all you need to say is "X will be performed as described in the SOP XXX".

Please download the current SOP and SWMS version every time when writing an application, and use any versions thereafter during the approval of your project.

The **College of Medicine and Public Health** Animal Facility SWMSs are available at:
<http://www.flinders.edu.au/research/researcher-support/ebi/animal-ethics/resources/sops.cfm>

The **College of Science and Engineering** Animal Facility SOPs are available at:
<http://www.flinders.edu.au/research/researcher-support/ebi/animal-ethics/resources/sops.cfm>



Statistical Advice

Various statisticians are available for consultation.

- For staff and students in the College of Medicine and Public Health:

The **Flinders Centre for Epidemiology and Biostatistics (FCEB)** may be able to help you in your study design and data analysis. Biostatistical consulting and collaboration is available to all staff within the College of Medicine and Public Health.

Advice is free for short consulting sessions. If extended consulting or other considerable input is required then the FCEB staff should be regarded as collaborators and not as free-advice consultants.

For more details, please check out the FCEB webpage: http://www.flinders.edu.au/medicine/sites/fceb/fceb_home.cfm

- For staff and students in the College of Science and Engineering:

A/Prof Duncan Mackay has generously volunteered his time to offer statistical advice.

Researchers **must first attempt statistical work** with their supervisors before arranging an appointment with A/Prof Mackay.

A/Prof Mackay can be contacted via (08) 8201 2627 or duncan.mackay@flinders.edu.au

- For staff and RHD students outside of the above areas (*and in special cases Honours students - see Guidelines Document* https://flo.flinders.edu.au/pluginfile.php/1675303/mod_lesson/page_contents/11360/Guidelines%20for%20Statistical%20Consultancy%20with%20Mr%20Pawel%20Skuza%202016.pdf):

Statistical support can be obtained by contacting **Mr Pawel Skuza** via (08) 82013346 or pawel.skuza@flinders.edu.au

Researchers **must first attempt statistical work** with supervisors or colleagues before arranging an appointment with Mr Skuza.

Please be aware that an appointment is necessary due to the continuing demands for consulting time, and depending on the number of pending requests, you may have to be placed on a waiting list.



Composition of Animal Ethics Committees



The *Australian Code* and the *Animal Welfare Act 1985* **together** require institutions (in South Australia) to have Animal Ethics Committees composed of the following member categories:

- **Category A** - Veterinarians, who may be independent of the University.
- **Category B** - Institutional researchers and lecturers.
- **Category C** - People committed to animal welfare, who are independent of the University (i.e. RSPCA representatives).
- **Category D** - Community representatives, with no animal research or teaching background, who are independent of the University.
- **Category E** - Institutional Animal Facility staff (only required when animals are held by an institution for use in teaching or research activities).

At Flinders University, in order to achieve quorum, the Chair plus at least one member representative of each Category A to E must be present during AWC meetings. In addition, Category C plus D members must represent no less than one third of the Category A plus B plus C plus D members present.

Please note, the *Australian Code* requires that AECs are composed of Category A-D members, and in South Australia the *Animal Welfare Act 1985* also requires Category E members to be present in order to achieve quorum.

Membership of the AWC

It's important for you to know about the membership of the Animal Welfare Committee (AWC) because when you write an application you need to be aware that it will not be read by a bunch of scientists like you. The AWC contains members who are scientific researchers but they are a **minority** rather than a majority. The AWC contains members of the public with no experience of research and science, those whose interests lie in animal welfare and veterinarians who have experience in animal health and husbandry.

This is important information for you. You will need to find a way to write your application in lay-speak rather than science-speak so that what you're proposing to do is easily understood. You will need to justify your use of animals by explaining the scientific value of your proposed work, describe what will happen to the animals, and balance the benefits of the project outcomes with the welfare impacts. If the Committee cannot follow your proposal it will be coming back to you for further development and this will cause delays.

Maintaining confidentiality and security is essential to protecting the ethics approval process as well as privacy, innovation, the integrity of research and the reputation and safety of individuals and institutions. AWC members **must sign a Confidentiality Agreement** that protects project-specific information, animal facility processes, details about the AEC process, conversations, deliberations or decisions, and details about other Committee members from being disclosed outside of the Committee itself.

Please note, AWC members are appointed on a **volunteer** basis, and therefore receive **no sitting fee**. In addition, many members volunteer on the AWC in addition to maintaining full-time jobs with other employers. Flinders University greatly appreciates the time and dedication of AWC members.



Scope and Nature of the AWC

- The Animal Welfare Committee (AWC) **Terms of Reference** are described in the following document:
https://flo.flinders.edu.au/pluginfile.php/1675303/mod_lesson/page_contents/10953/AWC%20Terms%20of%20Reference%202015%20CURRENT.pdf

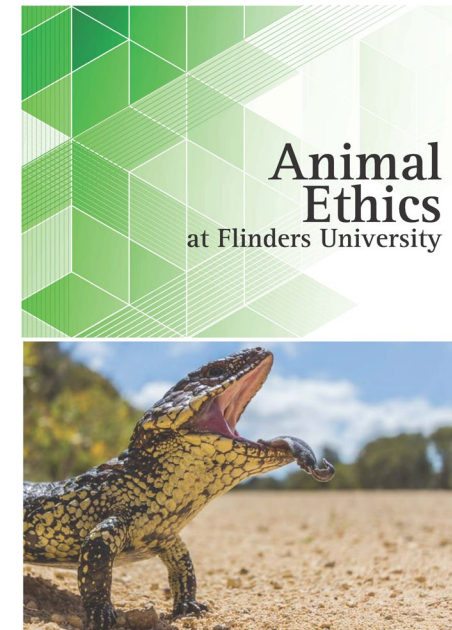
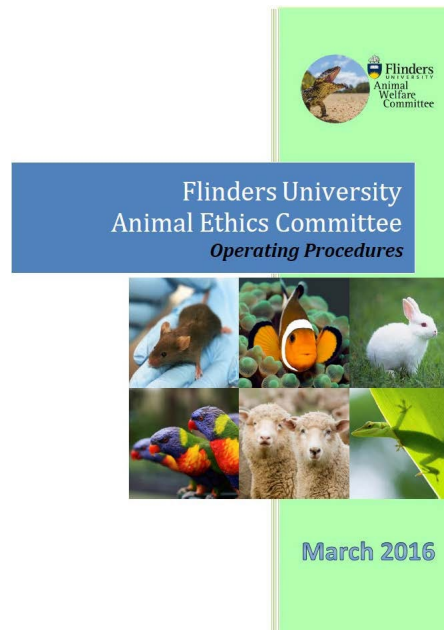
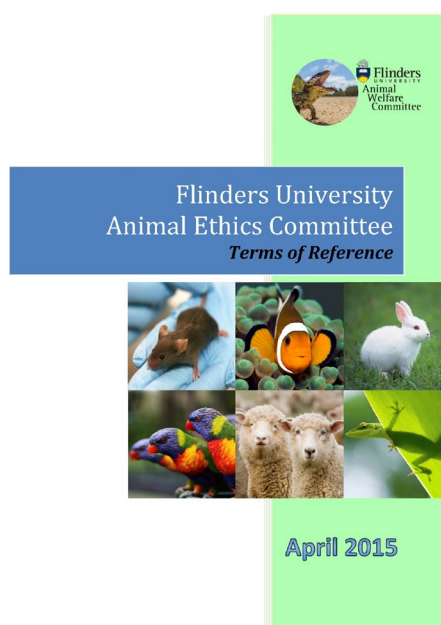
The Terms of Reference describe the powers, membership, and rules of conduct.

- The Animal Welfare Committee (AWC) **Operating Procedures** can be found in the link below:
https://flo.flinders.edu.au/pluginfile.php/1675303/mod_lesson/page_contents/10953/AWC%20Operating%20Procedures%202016%20CURRENT.pdf

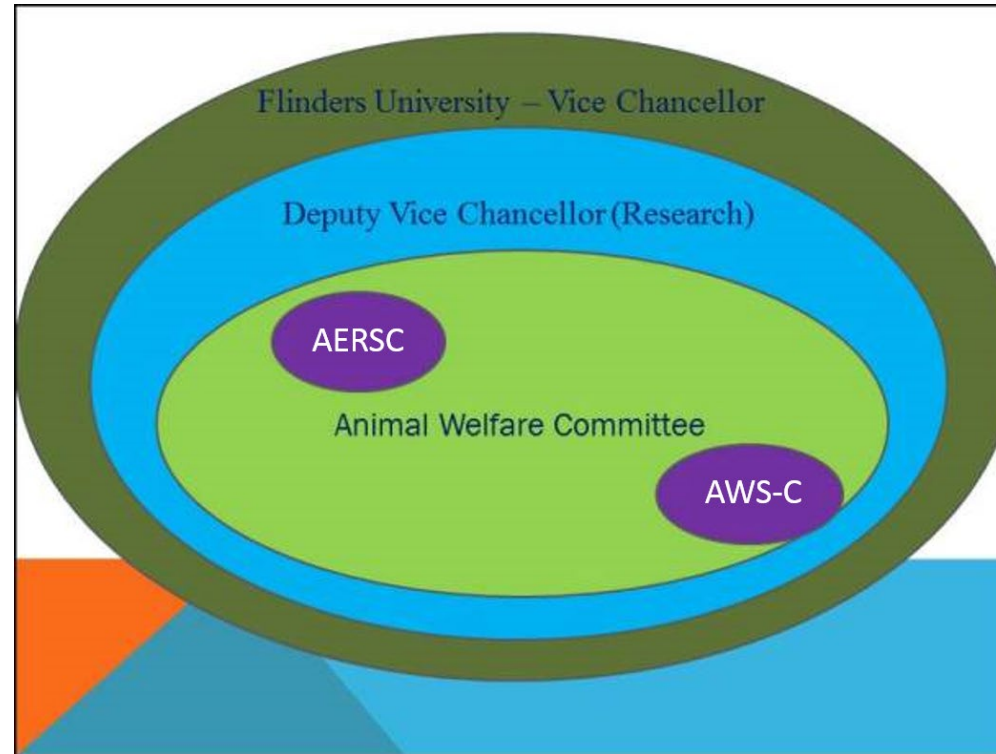
The Operating Procedures describe how decisions are made, meeting frequency, and different types of application approvals.

- A useful **brochure** that may help you understand Animal Ethics at Flinders University can be found in the link below:
https://flo.flinders.edu.au/pluginfile.php/1675303/mod_lesson/page_contents/10953/Animal%20Ethics%20Brochure%202016.pdf

Please download a copy of these documents as you will require them when working with animals in teaching or research at Flinders University.



Where Does the AWC Fit?



The Animal Welfare Committee (AWC) is under the umbrella of the **University's Office of the Vice-Chancellor**, and the AWC advises the **Deputy Vice-Chancellor (Research)**.

Assisting the AWC there are two Sub-Committees that ensure project applications have been judged by academic peers for scientific validity. These Sub-Committees have been formed from the College of Medicine and Public Health (entitled the Animal Ethics Review Sub-Committee (**AERSC**)) and College of Science and Engineering (entitled the Animal Welfare Sub-Committee (**AWS-C**)).

Who Reviews Applications?

All applications must be submitted through one of the two AWC sub-committees:

- Researchers with projects aligned to the **College of Medicine and Public Health** should apply to the **Animal Ethics Review Sub-Committee (AERSC)** (aersc@flinders.edu.au).
- Researchers with projects aligned to the **College of Science and Engineering** should apply to the **Animal Welfare Sub-Committee (AWS-C)** (awsc@flinders.edu.au).

The Sub-Committees assist the AWC by reviewing the scientific merit of applications, and provide recommendations for revision to researchers before their application is reviewed by the AWC. The Sub-Committees are composed entirely of Flinders researchers, who work on a **volunteer** basis.

Following Sub-Committee review, applications are then reviewed by the AWC.



Deadlines & Review Time Frames



- **Internal deadlines for ethics applications**

Internal deadlines for the receipt of new ethics applications are available for download via the AWC website: http://www.flinders.edu.au/research/researcher-support/ebi/animal-ethics/animal-ethics_home.cfm

- **Time Frames**

Please be aware that the approval process takes several months and submission deadlines are strictly adhered to. Please be aware, very few applications receive straight approvals, and each round of re-review adds an additional 1 month to the approval process.

Application Forms

New Applications – College of Medicine and Public Health

Researchers with projects aligned to the College of Medicine and Public Health, and for any work undertaken using animals in the College of Medicine and Public Health Animal Facility, should apply to the Animal Ethics Review Sub-Committee (AERSC).

1. Complete the Flinders University Biomedical Animal Ethics Application Form, which can be downloaded from the *Application Forms, Cover Sheet and Templates* page (<http://www.flinders.edu.au/research/researcher-support/ebi/animal-ethics/resources/forms.cfm>).
2. All projects from the College of Medicine and Public Health must download and complete the Clinical Record Sheet template (where appropriate), available from the *Application Forms, Cover Sheet and Templates* page (<http://www.flinders.edu.au/research/researcher-support/ebi/animal-ethics/resources/forms.cfm>). The Animal Welfare Officer (AWO) is available for consultation regarding personalisation of the template to each project.
3. Submit a signed electronic version of your application as a single PDF file to the AERSC (aersc@flinders.edu.au), which includes the following documentation, prior to the submission deadline:
 - Completed application form, including any required supporting documentation.

Please note that the AERSC does not accept applications submitted in hardcopy.



Application Forms

New Applications – College of Science and Engineering

Researchers with projects aligned to the College of Science and Engineering, using captive AND/OR non-captive wildlife, should apply to the Animal Welfare Sub-Committee (AWS-C).

1. Complete the Flinders University Biology Animal Ethics Application Form, which can be downloaded from the *Application Forms, Cover Sheet and Templates page* (<http://www.flinders.edu.au/research/researcher-support/ebi/animal-ethics/resources/forms.cfm>).
2. All projects from the College of Science and Engineering must download and complete the Clinical Record Sheet template (where appropriate), available from the *Application Forms, Cover Sheet and Templates page* (<http://www.flinders.edu.au/research/researcher-support/ebi/animal-ethics/resources/forms.cfm>). The Animal Welfare Officer (AWO) is available for consultation regarding personalisation of the template to each project.
3. Submit a signed electronic version of your application as a single PDF file to the AWS-C (awsc@flinders.edu.au), which includes the following documentation, prior to the submission deadline:
 - Completed application form, including any required supporting documentation.

Please note that the AWS-C does not accept applications submitted in hardcopy.



Mutual Agreement Deed

Flinders has in place a ***Deed for Reciprocal Access to Animal Ethics Committees*** with **most** South Australian Animal Ethics Committees. This means that where teaching, research or experimentation will be undertaken by a collaboration of staff from multiple institutions, in most instances only a single Animal Ethics Committee approval is required for the activity.

Approval must be obtained from the Animal Ethics Committee established **by the institution that is responsible for the premises in which the animals will be held**. However, if the animals will not be held captive, approval must be obtained from the Animal Ethics Committee established by the institution which employs or engages the primary applicant on an Animal Ethics approval application.



Types of Approval Notices

Deferral / Not Approved Notice

In some cases, an application may receive a Deferral or Not Approved Notice by the AWC. If your project has received Deferral/Not Approved, you must revise your application as per the Notice and resubmit the revised application as a single PDF file directly to the AWC for review.

Pending Approval Notice

In some cases, the AWC may Pending Approve an application, subject to specified changes being made to the application before the project commences. If your project has received Pending Approval from the AWC you must submit your revised application as a single PDF file directly to the AWC for review. The project may not commence until you receive an official Approval Notice or Approval with Conditions Notice.

Approval with Conditions Notice

In some cases, the AWC may approve a project that may commence immediately under the provision that certain conditions are met in a timely fashion, as stated in the Approval with Conditions Notice. These conditions vary from case to case and must be met according to the individual deadlines as per the Notice and / or advice from the Animal Ethics Officer.

Approval Notice

In some cases, the AWC may approve a project outright, which may commence immediately as planned, with no additional conditions or provisions placed on the project.



Modifications

Over the duration of a project circumstances may change and it may become necessary to modify your animal ethics approval.

Projects can be modified at any point using the **Modification Coversheet**, which is submitted to the relevant Sub-Committee for review. To request a change, complete the Modification Coversheet and submit it along with a WORD version of your approved application form WITH TRACK CHANGES highlighting the requested change(s).

Please note, that in cases where the modifications alter the originally approved **aims** of the project, a new application will need to be submitted.

Office Use Only	Project Number:	Date Received:	Modification Number:	Version Number:
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The Flinders University Animal Welfare Committee
MODIFICATION COVERSHEET

Instructions

- Complete this form and submit along with a WORD version of your approved application form WITH TRACK CHANGES ONLY highlighting the requested changes;
- A NEW signature page must be submitted with the track changed application;
- After completing this form, submit an electronic copy of this coversheet and your track changed application form to the Animal Ethics Officer via animal.welfare@flinders.edu.au
- Use this form ONLY for new projects or projects that have only been modified ONCE using the previous "Modification Forms".

1. Is urgent consideration of this modification required?
☐ No.
☐ Yes. Please Justify:

2. Type of request? (Tick all applicable)
☐ Extension of time.
☐ Change of personnel.
☐ Modified experimental step/s.
☐ Additional experimental step/s.
☐ Modified or additional animals.

3. Briefly summarise the requested modification:
(Provide a one sentence/phrase/dot point description of each proposed amendment. Include the section number of the application in which the modifications are found.)

4. Please explain why this modification is being requested:
(Explain why the proposed amendments are necessary to meet the project aims, taking into account the ethical considerations, the impact on the welfare of the animals, and the anticipated scientific or educational value)

5. Briefly summarise any modifications to the project that have been previously approved
(Include the date of approval)

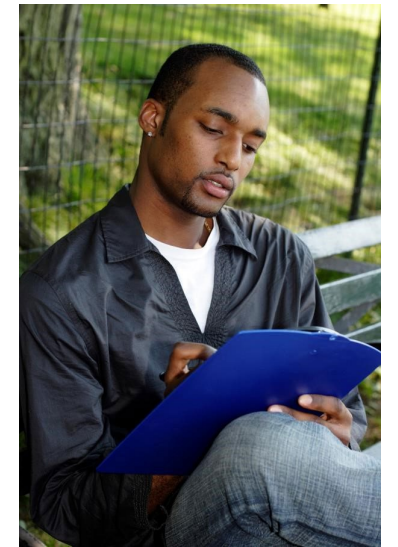


Annual Reports

Researchers are required to submit an Annual Report of Progress to the Animal Welfare Committee (AWC) by **1st February** each year, for the previous calendar year, for all projects which are subject to animal ethics approval.

If an Annual Report of Progress is not received by this time, ethics approval will be withdrawn and the researcher and relevant Animal Facility Manager will receive notification that the project has been suspended. The relevant College, the DVCR, and the relevant funding body (if applicable) will be notified in the event that a project is suspended as a result of a researcher's failure to meet the reporting requirements of the AWC, as this is considered to be a performance issue. The project may only resume following the submission and approval of a new application for animal ethics approval.

You can download the template for the Annual Report of Progress from the AWC website: http://www.flinders.edu.au/research/researcher-support/ebi/animal-ethics/animal-ethics_home.cfm



Final Reports

Researchers are required to submit a Final Report to the Animal Welfare Committee (AWC) for any projects which are subject to animal ethics approval by **1st February**, for the previous calendar year, unless a request for extension of ethics approval has been received by **31st December** in the year of expiry.

The relevant College, the DVCR, and relevant funding body/bodies (if applicable) will be notified in the event that a researcher fails to submit a Final Report to the AWC by this time, as this is considered to be a performance issue. At the expiration of the animal ethics approval, the relevant Animal Facility Manager will be advised that the use of animals in the project must now cease.

You can download the template for the Final Report from the AWC

website: http://www.flinders.edu.au/research/researcher-support/ebi/animal-ethics/animal-ethics_home.cfm

Who should you contact if you need help completing new application forms, modification forms, or any other animal ethics related paperwork?

The **Animal Ethics Officer** is available anytime to help with the completion of animal ethics related paperwork (for example: new application forms, modification forms, Annual Reports, Final Reports, Clinical Record Sheet, Running Mortality Sheets, etc).

The **Animal Ethics Officer** can be contacted via:

Email: animal.welfare@flinders.edu.au

Phone: (08) 8201 5962

Mobile: 0433 122 700

Drop-in visit: Research Development & Support office, Union Building basement



Your Responsibilities

YOUR RESPONSIBILITIES

- Place the welfare of your animals first
- Plan your research project and have it's scientific integrity reviewed by the AWC sub-committee
- Attend to the welfare of the animals and obtain AWC approval for your project
- Obtain any other relevant approvals (such as IBC) or permits (such as AQIS or wildlife...), or other permissions
- Do not start your project until you have received a formal notification of approval
- Note any conditions associated with your AWC approval and honour them
- Do not veer away from the plan you obtained approval for
- Obtain AWC approval for any changes made in your project
- Complete annual progress reports as required.



The *Code* specifies that Principal Investigators have overall responsibility for the welfare of animals involved in their approved projects. Even if you are not the Principal Investigator, **you are still personally responsible** for the animals you work with within in a project.

A reminder that only **after** you have received an Approval Notice from the Animal Welfare Committee can you order animals, commence fieldwork, or start working with animals already obtained. In addition, you are required to submit an amendment for a project to the AWC and receive approval **prior** to implementing any changed conditions.

Take note of the responsibilities listed above. If you do not adhere to them your participation in a project may be cancelled or the entire project could be suspended. Remember that you cannot start your project until you have approval from the AWC. If you are using animals in one of the Animal Facilities the Facility Manager must also give you permission to commence your project.

Monitoring

An important part of our responsibility to animal care is monitoring and the assessment of clinical signs during research projects. If you have animals under your care, you are responsible for monitoring their well-being on a daily basis. This can be done by the member of the research team or by the Animal Facility staff, provided prior arrangements have been made. The *Code* is very explicit in emphasizing that the principal investigator has ultimate responsibility for all animals in a project in addition to the individual responsibility of each person associated with the project.

Records should be maintained of your daily monitoring between intervention procedures. The **Maintenance Monitoring Sheet** is an easy to use template and may be found on the AWC [website: http://www.flinders.edu.au/research/researcher-support/ebi/animal-ethics/resources/forms.cfm](http://www.flinders.edu.au/research/researcher-support/ebi/animal-ethics/resources/forms.cfm)

When you conduct intervention procedures it will be necessary to monitor the animals more frequently using pre-determined clinical criteria. This criteria and frequency of monitoring is determined by the principal investigator and the AWO, and is then ratified by the AWC once the project application has been accepted. You can obtain both the **Clinical Record Coversheet** (which describes the criteria) and the **Clinical Record Sheets**, on the same webpage as the Maintenance Monitoring Sheet.

The AWC usually expects that animals will be clinically graded from once to twice daily for 48 hours after any intervention procedure.



Facial Grimace Score

NC
3R^s













National Centre
for the Replacement,
Refinement & Reduction
of Animals in Research

The Rat Grimace Scale

Research has demonstrated that changes in facial expression provide a means of assessing pain in rats.

The recently found *orbicular orosensorialis* facial muscle was used to generate the Rat Grimace Scale. These activities increase in intensity in response to painful procedures and can be used as part of a clinical assessment.

The authors should only rely on the use of animal models. Each animal should be observed for a short period of time to avoid causing long-term changes in facial expression that are unrelated to the animal's welfare.

	Not present "0"	Moderately present "1"	Obviously present "2"
Orbital tightening <ul style="list-style-type: none">Drawing of the eyelid (lowering at orbital axis)A wrinkle may be visible around the eye			
Nostrilcheek flattening <ul style="list-style-type: none">Flattening and elongation of the bridge of the noseFlattening of the cheek (particularly human-like)			
Ears changes <ul style="list-style-type: none">Ears fold inwardly and are angled forward to form a pointed shapeSpace between the ears increases			
Whisker change <ul style="list-style-type: none">Whiskers flatten and angle along the faceWhiskers may 'clump' togetherWhiskers lose their natural 'downward' curve			

Read the original paper:

Shen Z, Chen S, Davis A, Yellin M, Oikari J, Wiegand JG, Hagenkötter JGS, et al. Zhou Z, McGlone D, Li Jing CS, Wang JS. 2013. The Rat Grimace Scale: a portable, automated method for scoring pain in the laboratory rat via facial expressions. *PainPract* 13(5): 464-70. DOI:10.1016/j.painpr.2013.05.005

For guidance on how the Rat Grimace Scale research papers that underpin this technology and for general information about existing rat research see our [guidance notes](#). To help and support the wider science community we have also created a [FAQ](#). The NC3Rs provides a range of free resources at <https://www.nc3rs.org.uk/resources>. Images kindly provided by Dr. Jeffery Wang, NC3RS (UK) charity.

NC
3R^s
















National Centre
for the Replacement,
Refinement & Reduction
of Animals in Research

The Mouse Grimace Scale

Research has demonstrated that changes in facial expression provide a means of assessing pain in mice.

The specific facial action units shown below have been found to generate the Mouse Grimace Scale. These actions usually increase in intensity in response to post procedural pain and can be used as part of a clinical assessment.

The accounts should only only be used in animals already known to be discomforted for a short period of time to avoid scoring painful changes in facial expression that are unrelated to the animal's welfare.

	Not present "0"	Moderately present "1"	Obviously present "2"
Oroital tightening <ul style="list-style-type: none">Crossing of the eyelid line crowing of orbital areaA wrinkle may be visible around the eye			
Nostril bulge <ul style="list-style-type: none">Bulging on the bridge of the noseVertical wrinkles on the side of the nose			
Cheek bulge <ul style="list-style-type: none">Bulging of the cheeks			
Ear position <ul style="list-style-type: none">Ears rotate outwardly and/or backward, away from the faceEars may fold to form a "pointed" shapeSpace between the ears increases			
Whisker change <ul style="list-style-type: none">Whiskers are either pulled back apart the cheek, or pulled forward to stand on endWhiskers may clump togetherWhiskers lose their natural downward curve			

Based on the original paper:

Wentz et al., Cheema M., Clasper R., Desmett D.E., Crooks S., Scott S., Saper A.
Painless Mouse Pain Rating Scale (M-PeRS). *Journal of Laboratory Animal Science*, 2014, 54(1), 1-10.
This work was supported by the National Institutes of Health (NIH) under award number R01NS084444.
The authors thank Dr. David J. Klapper for his assistance in developing the M-PeRS scale.
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For additional information on the Mouse Grimace Scale, research groups that understand this technique, and the general context in other species, visit www.nc3rs.org.uk/mouse-grimace-scale.
To request details of this material please email nc3rs@nc3rs.ac.uk.
The NC3Rs provides a range of free educational resources (www.nc3rs.ac.uk/resources)
Images kindly provided by Dr Anthony Brook, Macfarlane Veterinary

[illegible]

An example of a clinical criteria used in scoring is the Facial Grimace Score, which has been validated for post-surgical pain assessment in rats, mice, and rabbits. An example of this scoring system is shown above.

To view the above file as a pdf, visit here:

https://flo.flinders.edu.au/pluginfile.php/1675303/mod_lesson/page_contents/10940/Rat%20grimace%20scale%20NC3Rs.pdf

A similar poster is available for mice, but remember that mice show different facial characteristics when in pain:

https://flo.flinders.edu.au/pluginfile.php/1675303/mod_lesson/page_contents/10940/Mouse%20grimace%20scale%20NC3Rs.pdf

Clinical scores are used to objectively determine the status of the well-being of an animal. Scores are tallied and if they reach a pre-determined intervention point, consultation with the AWO, treatment, or euthanasia may be required. We do this in order to provide animals with humane endpoints to avoid unrelieved suffering and distress.

Monitoring Sheets

Maintenance Monitoring Sheets are designed to be used when there is a low risk to animal well-being, and when no intervention procedures are being undertaken. This sheet can be used when **no procedures** are undertaken, and when **no welfare impacts** are expected (i.e. following complete recovery from a procedure or intervention, where **no welfare impacts** are expected). All animals are checked once daily, all cages recorded on the one sheet, and if any anomaly is recorded the animal concerned is then transcribed to a Clinical Record Sheet and is monitored twice daily. See the example below:

Example: https://flo.flinders.edu.au/pluginfile.php/1675303/mod_lesson/page_contents/10949/Maintenance%20Monitoring%20Sheet%20example.pdf

Clinical Record Coversheets are used to define the clinical criteria, score weighting, and intervention criteria in a project. Check the example shown below:

Example: https://flo.flinders.edu.au/pluginfile.php/1675303/mod_lesson/page_contents/10949/Coversheet%20clinical%20score%20criteria%20example.pdf

Clinical Record Sheets are used to record scores on clinical assessment, tally scores, record intervention points, and humane endpoints. Clinical Record Sheets can be used during and immediately following a procedure or intervention, or whenever **welfare impacts are expected**. All animals are checked a minimum of once daily, with one animal recorded per sheet.

Example: https://flo.flinders.edu.au/pluginfile.php/1675303/mod_lesson/page_contents/10949/Clinical%20Record%20Sheet%20example.pdf

Please download templates direct from the AWC website every time you need them to ensure you are using the current version. These templates are regularly updated, and outdated versions will NOT be accepted.



If Something Goes Wrong ...

It is important to know before you start what would constitute an **Unexpected Adverse Event (UAE)** in your project. In your applications, make sure you describe all potential adverse problems and the frequency at which they might occur. Discuss how you will monitor these problems and reduce their severity and frequency within the application. This will avoid you having to submit lots of UAE reports. If you have something like this happen, the AWC, represented by the AWO, must know **immediately** in case any further problems arise.

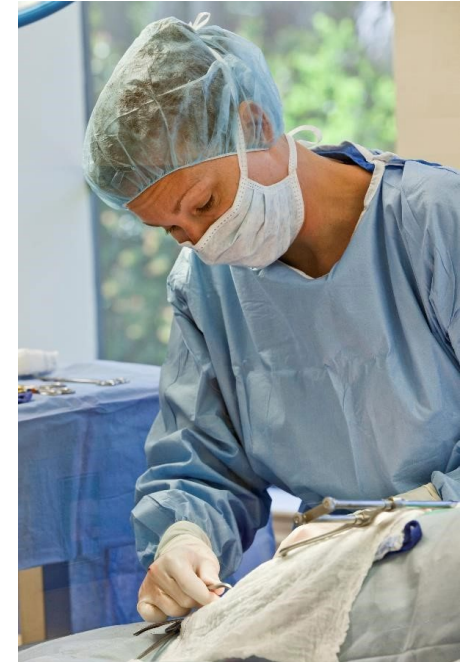
If you keep the AWC informed you will have their support, and this may be essential for managing such difficult situations.



- If an Unexpected Adverse Event occurs - Inform the Animal Welfare Officer **within 24 hours**. Contact the AWO by phoning or sending a SMS text to: 0450 424 143. The AWO is available 24/7 for emergency consultation so there is no excuse for not notifying the appropriate authorities. If the AWO is not available, notify the Animal Facility Manager within the same time frame and explain that you have not yet contacted the AWO.
- **A post-mortem examination MUST be performed** (following an unexpected adverse event) according to the Post-Mortem Examination Guidelines document.
- You must submit an **Unexpected Adverse Event Form**, available on the "Managing your ethics approval" webpage, **within 3 working days** to the Animal Ethics Officer (animal.welfare@flinders.edu.au).
- When you submit your UAE Form, you must include relevant Clinical Records Sheets, Maintenance Monitoring Sheets, and a completed Post-Mortem Examination Form. The Post-Mortem Examination Form can be obtained from the AWC website, Animal Facility Manager, the Animal Ethics Officer, or the AWO.

Resources

- Training in animal care, handling, and technical procedures is available through the Animal Facility Manager's and the AWO.
- The Animal Ethics Officer can assist in the development of AWC project applications.
- The AWO can provide veterinary advice in clinical monitoring criteria, establishment of intervention points, determination of humane endpoints, selection and use of analgesic and anaesthetic agents.
- The Animal Ethics Officer (animal.welfare@flinders.edu.au) can assist you with the AWC application process, reports, and reviews.
- Ensure you are familiar with the *Code* available on the AWC website: <http://www.flinders.edu.au/research/researcher-support/ebi/animal-ethics/about.cfm>
- Bookmark the Flinders University Animal Ethics website (http://www.flinders.edu.au/research/researcher-support/ebi/animal-ethics/animal-ethics_home.cfm) for any information relating to the use of animals at Flinders University, and for managing your ethics approvals.



Resources

Also consider consulting the following resources:

- Animal Facility Standard Operating Procedures (<http://www.flinders.edu.au/research/researcher-support/ebi/animal-ethics/resources/sops.cfm>)
- Johns Hopkins Bloomberg School of Public Health - Altweb - Global clearinghouse for information on alternatives to animal testing (<http://altweb.jhsph.edu/>)
- Guidelines to promote the wellbeing of animals used for scientific purposes (https://flo.flinders.edu.au/pluginfile.php/1675303/mod_lesson/page_contents/10447/ea18.pdf)
- Guidelines for the generation, breeding, care and use of genetically modified and cloned animals for scientific purposes (https://flo.flinders.edu.au/pluginfile.php/1675303/mod_lesson/page_contents/10447/ea17.pdf)
- A Guide to the care and use of Australian native mammals in research and teaching (https://flo.flinders.edu.au/pluginfile.php/1675303/mod_lesson/page_contents/10447/ea29_guide_aus_native_mammals_141003.pdf)
- Australian code for the responsible conduct of research (https://flo.flinders.edu.au/pluginfile.php/1675303/mod_lesson/page_contents/10447/code.pdf)
- *Wildlife Ethics Committee, 2013, Euthanasia of research animals in the field policy*, DEWNR, South Australian Government (https://flo.flinders.edu.au/pluginfile.php/1675303/mod_lesson/page_contents/10447/wec-euthanasia-of-research-animals-policy-gen.pdf)
- American Veterinary Medical Association, 2013, *AVMA Guidelines for the euthanasia of animals: 2013 edition* (https://flo.flinders.edu.au/pluginfile.php/1675303/mod_lesson/page_contents/10447/euthanasia.pdf)
- Australian and New Zealand Council for the Care of Animals in Research and Teaching website (<https://www.adelaide.edu.au/ANZCCART/>)



Resources

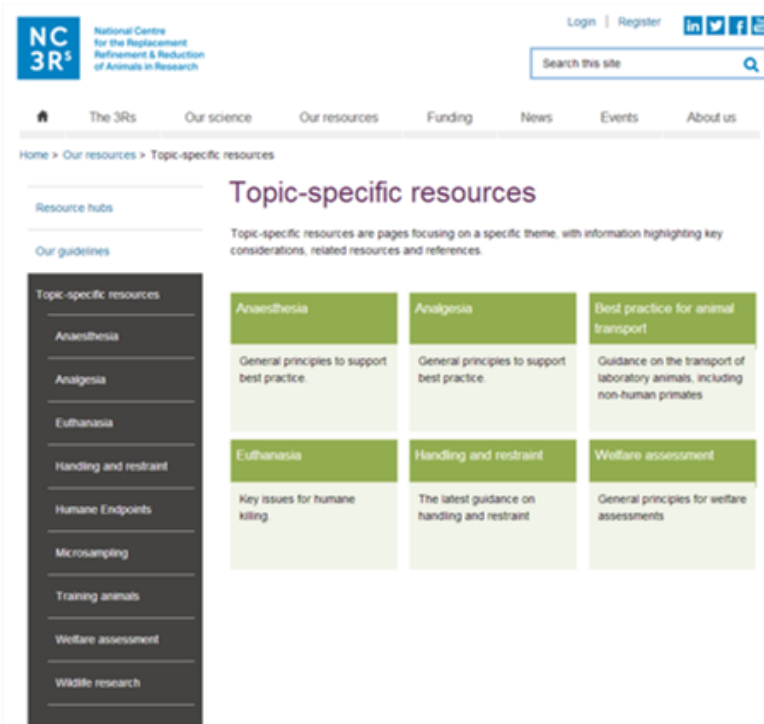
- Here are two useful Animal Handling Videos websites: <https://www.nc3rs.org.uk/topic-specific-resources-0>
<http://www.procedureswithcare.org.uk/>

ANIMAL HANDLING VIDEOS #1

NC3Rs

<https://www.nc3rs.org.uk/topic-specific-resources-0>

- Free short videos to assist researchers develop their skills working with laboratory animals.



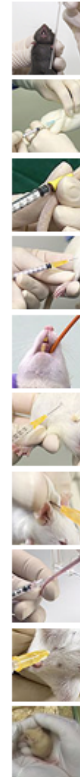
ANIMAL HANDLING VIDEOS #2

"Procedures With Care"

<http://www.procedureswithcare.org.uk/>

SECTION 1 - Administration of Substances:

A series of short tutorials to assist researchers develop their skills in the administration of substances to laboratory animals.



Oral Gavage in the Mouse

Subcutaneous Injection in the Rat

Intravenous Injection in the Rat

Intramuscular Injection in the Rat

Oral Gavage in the Rat

Intraperitoneal Injection in the Rat

Subcutaneous Injection in the Mouse

Intravenous Injection in the Mouse

Intraperitoneal Injection in the Mouse

Handling and Restraint of the Animal

SECTION 2 - Aseptic Technique in Rodent Surgery:

A comprehensive guide to help researchers apply best practice in aseptic surgical techniques in laboratory rodents.



- Introduction
- Instruments
- Other Materials
- Preparation of the Animal
- Preparation of the Surgeon
- Preparation for Surgery
- The Surgical Procedure
- Batch Surgery

Scavenged Tissues

If you require scavenged tissues from animals that have already died, or you wish to undertake a project that you believe does not require AWC approval, you must inform the Animal Ethics Officer **before you commence.** You can contact the Animal Ethics Officer by email at: animal.welfare@flinders.edu.au



Animal Welfare Officer Introduction

Who? – Lewis Vaughan, B.V.Sc
(Hons), MANZCVS, Grad Dip Ed (Adult), Cert IV TAE,
Grad Cert Mgt



Hello, I am your Animal Welfare Officer (AWO). My job is to assist you to comply with the requirements of the University's Animal Welfare Committee (AWC) and the *Australian Code for the Care and Use of Animals for Scientific Purposes, 2013*. I am **registered with the Veterinary Surgeons Board of South Australia** and a certified member, by examination, of the Animal Welfare Chapter of the Australian and New Zealand College of Veterinary Scientists. My background includes additional qualifications and extensive experience in veterinary practice and vocational training/assessment.

Please look at the following slides and answer the simple questions that follow so you can understand my role at the university.

Role of the AWO

My role as the Animal Welfare Officer is to:

- Provide veterinary and welfare advice to you, the Animal Welfare Committee, and the Deputy Vice Chancellor (Research),
- Develop policies and procedures relating to animals in teaching and research,
- Promote awareness and compliance with the *Animal Welfare Act 1985* and the *Code*,
- Authorise and implement emergency action to protect the welfare of animals,
- Monitor projects and facilities,
- Monitor your intervention points and humane endpoints,
- Conduct ethical review of projects and courses, and
- Provide training and assessment in procedures involving animals.



I can help you with:

- Developing applications for the subcommittees and the Animal Welfare Committee,
- Assessing the welfare impact of your research and procedures,
- Applying and integrating the 3Rs into your research with animals,
- Selecting and using veterinary anaesthetics, analgesics, and other drugs,
- Developing, reviewing, and modifying Standard Operating Procedures (SOPs) for review by the AWC, and
- Trouble shooting Unexpected Adverse Events (UAE) with you.

AWO - Awareness and Compliance



It is important that you are aware of the parts of the *Animal Welfare Act 1985*, the *Code* and the *NHMRC Guidelines* that are relevant to your work, because I monitor:

- Your AWC approvals and projects,
- The animals under your care and responsibility,
- Your technical skills and procedures which potentially have an impact on animals,
- Your Cage Cards and Clinical Record Sheets,
- Your SOPs and your ability to follow these relating to welfare, and
- The sourcing, supply, transport, facilities, and final destination of the animals under your care.

AWO Monitoring of Projects and Facilities

- My monitoring occurs with and without your notice.
- I am required to submit my reports to the AWC.
- Please ensure that all your records and Clinical Record Sheets are up to date and are written in clear and simple script, so even I can read it!
- It is crucial that cage/enclosure cards are accurate and contain the AWC Approval Number and animal identification.
- I take particular interest in the intervention points described on your Clinical Record Sheets and will investigate to ensure humane endpoints are achieved.



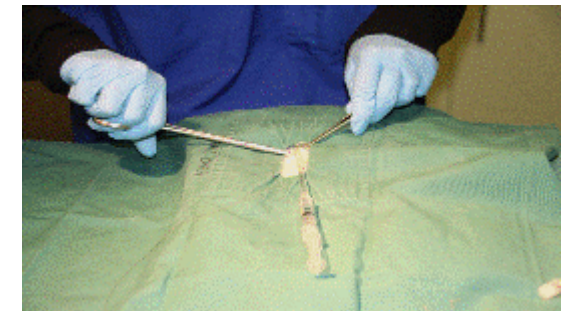
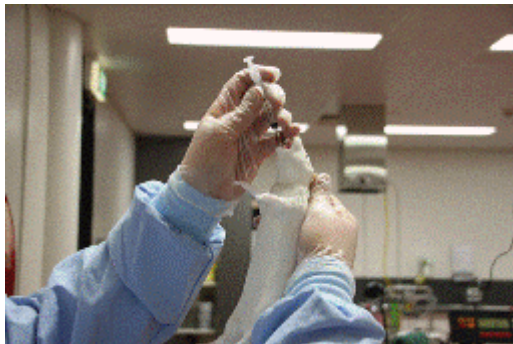
Why Get the AWO Involved?

Seek my help early in project development, during its progress, and in review. My veterinary and welfare advice carries weight with the AWC. If you pre-empt problems by seeking my support you will reduce the number of Unexpected Adverse Events (UAE) and difficulties in your project.

Don't go it alone - get my help so I can support you.

Remember that I have extensive adult education and assessment experience relating to animal welfare. I (or our experienced researchers or our trained technicians) can help you learn to:

- Handle and restrain animals confidently,
- Give medication and collect samples,
- Administer and maintain anaesthesia, and
- Conduct aseptic surgical techniques.



Location of the AWO

The AWO works half time and is available on campus on Wednesdays, Thursdays, and every second Friday.

Remember - your compliance with the directions of the AWC is a **legal requirement**.

My desk is located in the Research Development and Support office, Basement Level, Union Building.

For emergencies, **ring** or send a **SMS** to **0450 424 143** anytime

Email me at: awo@flinders.edu.au



AWO Emergency Action

So you need my help urgently - What do you do?



In an emergency - Ring me or send a SMS text to 0450 424 143

- **I am on call 24/7** - for researchers, supervisors and technicians.
- My duty is to respond to crises in animal welfare.
- I can take emergency action to protect welfare independently of AWC approval and without your permission - this includes modifying or cancelling projects, and means that I have the authority to suspend an approved project.
- The AWO represents the DVCR and the AWC in these actions.
- I seek to liaise closely with the principal investigators, Animal Facility Manager's and staff, and you when working in these situations.

Flinders University Institutional Biosafety Committee (IBC)



Role of the Committee

To ensure that any research at Flinders using genetically modified organisms and pathogenic microorganisms is carried out according to regulations stipulated by the Office of the Gene Technology Regulator (OGTR) and Australian Standards.

In terms of animal work, approval is required for work with:

- a genetically modified (GM) animal;
- a non-GM animal containing a GM microorganism; and
- a GM or non-GM animal containing a pathogenic microorganism.

Please check the *Biosafety website* (http://www.flinders.edu.au/research/researcher-support/ebi/biosafety/biosafety_home.cfm) for further information or contact ibcadmin@flinders.edu.

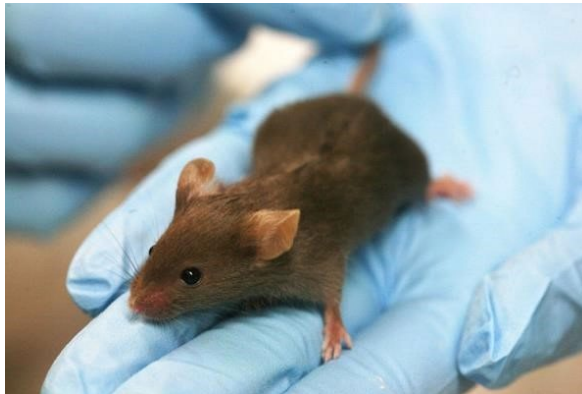
Ongoing Training

The Animal Welfare Committee (AWC) hosts a 1 hour **Animal Researcher Information Session (ARIS)** at least twice a year for **ALL** researchers to be informed of recent updates and changes implemented, to refresh their knowledge and understanding of current thinking in animal welfare, and to be aware of current best practice. This is followed by an open panel discussion of issues raised by the participants.

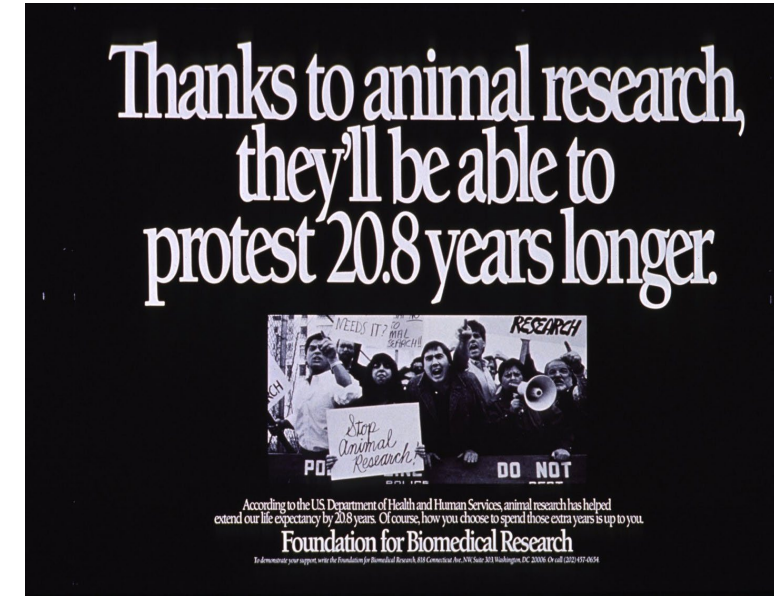
Researchers **must** attend Animal Researcher Information Session (ARIS). Attendance is strongly endorsed by the Deputy Vice-Chancellor(Research) (DVCR), and it is a requirement of the *Code* that you remain up-to-date with current best practice and animal ethics guidelines.

Bookings are not required for Animal Researcher Information Session as attendance is taken at the start of the seminar.

Check the AWC website Training page (<http://www.flinders.edu.au/research/researcher-support/ebi/animal-ethics/resources/training.cfm>) for more details regarding the next event time and location.



There are Tensions in the Field of Animal Research and Teaching



There are different, even contrasting views about animals out in the public space. You should be mindful of different views both in society and in your own scientific community.

Many members of the public understand that the use of animals in research is essential for medical progress, human and animal welfare. However, other groups in the community, such as animal rights groups, see the use of animals as unjustified because it treats animals as a commodity and exploits them.

Others see that the issue of the inherent value of individual animal life is secondary to that of suffering. These people view that we have to balance harm versus benefit. In this view we need to justify the use of animals in teaching and research while minimising the harm we cause. Let us aspire to providing the best for the animals we work with while serving the community and the environment in advancing knowledge, scientific progress, medical research, and animal and environment conservation.

ANZCCART

What is ANZCCART?

- Australian and New Zealand Council for the Care of Animals in Research and Teaching (ANZCCART) Ltd.
- ANZCCART is a not – for – profit Company set up 28 years ago to provide leadership in response to increasing concerns and to help develop community consensus on ethical, social and scientific issues relating to the use of animals in research and teaching.

Who is ANZCCART ?

- Members of the ANZCCART Council include: Universities Australia, ARC, CSIRO, Royal Society NZ, NHMRC, Qld DPI, DPIPWE(Tas), Dept Local Govt & Regional Development WA, DPI Vic, NSW Dept Agriculture, Aust Vet Assoc, Agric & Vet Chem Assoc, SA Dept Environment, Water & Natural Resources, RSPCA, ASI, and ANZLAA.

What does ANZCCART believe?

- To achieve its mission ANZCCART will promote:
 1. Excellence in the care of animals that have to be used in research and teaching;
Responsible scientific use of animals;
 2. The 3R's policy of Replacement, Reduction and Refinement;
 3. Informed discussion and debate within the community regarding these matters; and
 4. Strategic partnerships to contribute to the education and training of scientists, students and the broader community.



ANZCCART

What can ANZCCART do for you?

- Free service for AEC members and support staff.
- Free service for researchers, academics, students, etc.

1. ANZCCART mailing list (including ANZCCART News, Occasional mail out of relevant information / notices, etc);

2. **ANZCCART Web site** www.adelaide.edu.au/ANZCCART/ ;

3. AEC member induction package (including Email enquiry line, Access to Fact Sheets, & some ANZCCART publications, etc); and

4. Advice on anaesthesia, analgesia & euthanasia techniques, housing & transport conditions, etc.

Books



Fact Sheets

