



Rhodes University Policy on Research Ethics

– Animal subjects

Policy Volume	Volume D
Policy Chapter	Research and Postgraduate Studies
Responsible Committee/Unit/Division/Faculty	Rhodes University Animal Research Ethics Committee (RU-AREC)
Responsible Chairperson/Director/Manager	Rhodes University Animal Research Ethics Committee (RU-AREC)
Dates of First and Subsequent Council Approvals	2023/08/01
Policy Approval Pathways (e.g. committee, Senex, Senate, Council)	Senate
Revision History: Approved Reviews	2023/08/01
Review Cycle (e.g. every 2/5/7 years etc)	Every four years or as necessary
Commencement date	1 August 2023 or the earliest and feasible date thereafter.
Next Review Date	1 st August 2027

1. POLICY PARTICULARS

1.1. Policy Title	Rhodes University Policy on Research Ethics – Animal subjects
1.2. Policy Statement <i>(State in a single paragraph the policy mandate and how this relates to the University Mission and Vision)</i>	In establishing this policy, Rhodes University, a university which measures itself against the highest international standards of academic and professional practice, sets a clear statement for the consideration of ethical requirements, and corresponding procedures to meet those requirements, on the use of animals in scientific activities across the whole University.
1.3. Reason for Policy <i>(What this policy aims to achieve)</i>	Animal welfare deserves the highest respect. Ethically correct conduct is thus of utmost importance for all activities under the auspices of Rhodes University. This policy succeeds previous policies to establish a Rhodes University Ethics committee from 2 November 1984, guidelines approved by Senate on 26 November 1986, and Rhodes University Policy on Ethics approved by Senate on 21 November 2014.
1.4. Policy Objective/s <i>(What are the measurable objectives of this policy)</i>	(a) Rhodes University Animal Research Ethics Committee (RU-AREC) aims to provide uniform and effective protection of animals that are associated with Rhodes University and any of its activities. Ethical considerations include (not exclusively) the minimisation of physical, psychological, social or financial risks, and the fulfilment of moral and legal standards. (b) This policy concentrates on ethical considerations in scientific activities involving animals. Further aspects of institutional ethics, ethical conduct, and ethics as an academic discipline or part of thereof are not covered by this policy. (c) It is incumbent upon the whole University to make staff, students and any other parties involved in University activities aware of this policy. The University must ascertain that, where applicable, all involved individuals are competent to maintain the standards outlined in this policy and the relevant protocols on ethics. (d) Ethical considerations are universal and have to be prioritised against any other interest. (e) Nothing in this policy document should be interpreted as relieving a University academic or support staff member(s), undergraduate or postgraduate student(s), postdoctoral fellow(s) or (senior) researcher associate(s) of any obligations acquired as a result of membership of a professional or other association. However, adherence to a professional code of ethics does not in itself override the obligation to observe this policy and the relevant protocols on ethics.
1.5. People affected by this Policy <i>(e.g. All units of the University)</i>	Academic or support staff member(s), undergraduate or postgraduate student(s), postdoctoral fellow(s) or (senior) researcher associate(s) associated with Rhodes University using animals in research and/or teaching activities. These stakeholders are referred to as RU stakeholders in further text of this policy.
1.6. Who should read this Policy <i>(People who need to heed this policy to fulfil their duties)</i>	RU stakeholders and RU-AREC members.
1.7. Implementers of this Policy <i>(Who will manage the</i>	RU-AREC, driven by its Executive Committee (EXCO) in collaboration with the DVC: Research, Innovations and Strategic Partnerships and Development, and all relevant RU stakeholders.

<i>implementation of this policy)</i>	
1.7 Website address/link for this Policy	http://www.ru.ac.za/institutionalplanningunit/policies/policiesa-z

2. RELATED DOCUMENTS FORMS AND TOOLS

(University Policies, Protocols and Documents (such as rules/policies/protocols/guidelines related to this policy)

Relevant Legislation (Legislation/Regulatory requirements/Organisational Reports – name these)
Agricultural Research Act, 1990 (Act No. 86 of 1990), as amended Animal Diseases Act, 1984 (Act No. 35 of 1984), as amended and repealed Animal Health Act, 2002 (Act No. 7 of 2002), as amended Animal Improvement Act, 1998 (Act No. 62 of 1998) Animal Matters Amendment Act, 1993 (Act No. 42 of 1993), as amended Animal Protection Act 1962 (Act no. 17 of 1962), as amended Marine Living Resources Act, 1998 (Act No. 18 of 1998) Medicines and Related Substances Control Act, 1965 (Act No. 101 of 1965), as amended National Environmental Management Act, 2008 (Act No. 62 of 2008), as amended (Biodiversity Act) plus including relevant regulations Performing Animals Protection Act, 1935 (Act no. 24 of 1935), as amended South African National Standard no. 10379:2005 Genetically Modified Organisms Act 15 of 1997 National Health Act no 61 of 2003 DoH 2015 Ethics in Health Research Guidelines South African National Standard no. 10386:2021 as a minimum standard Disaster Management Act no. 57 of 2002 Disaster Management Amendment Act no. 16 of 2015 Natural Scientific Professions Act No. 27 of 2003 (SACNASP act) Pharmacy Act no. 53 of 1974 Feedstock and remedies act of 1947 National Veld and Forest Fire Act no. 101 of 1998 Societies for Prevention of Cruelty to Animals, 1993 (Act no. 169 of 1993), as amended Professional Code of Ethics of the African Association of Zoos and Aquaria (any numbers here?), as amended Veterinary and Para-veterinary Professions Act, 1982 (Act No. 19 of 1982), as amended
Related Policies
Terms of Reference of RU-AREC
Related Protocols
All relevant SOPs of the RU-AREC and the relevant Rhodes University departments
Forms and Tools (documents to be completed in support of this policy implementation)
<i>E.g. Policy template for the policy itself. Documents pertaining to procedures for implementation, as well as monitoring and evaluation of the policy.</i>

All relevant SOPs of the RAUREC and the relevant Rhodes University departments and proof of competence/accredited certificates of training in animals ethics that has been undertaken by RU-AREC members/RU stakeholders

3. POLICY DEFINITIONS

3.1	Animal	This definition is in accordance with the definition of ‘animal’ in the SANS:10386 (2008) and updated versions thereof. Directly quoted from the SANS:10386:2021 section 3.3 “live, non-human vertebrate, including fertilized eggs, fetuses and embryos, i.e. fish, amphibians, reptiles, birds and mammals, and encompassing domestic animals, feral animals, purpose-bred animals, farm animals, wildlife and higher invertebrates, such as the Cephalopoda and Decapoda (for example, octopus, squid, cuttlefish)”. In addition, for the purposes of this policy, the lower invertebrates (any member of the kingdom Animalia, excluding those members of the Phylum Chordata, the Class Cephalopoda and the Order Decapoda) are considered to be animals. This would include cell lines, cadavers, museum and tissue specimens from animals. Please note that special considerations apply to research on primates, and special considerations and duties apply to research involving those species by RU stakeholders. RU stakeholders who plan to conduct research involving primates shall liaise with the RU-AREC as early as possible. Veterinary care for the primates must be provided and ensured to be in place under the RU-AREC oversight
3.2	Animal Ethics	The ethical principles that underpin the use of animals in scientific activities, incorporating the core ethical principles of i. Replacement of the use of animals with alternative models where feasible, ii. Reduction of the number of individual animals used to achieve the same level of scientific rigour and/or to achieve the goal of scientific activities with animals, iii. Refinement of experimental design, procedures, care and husbandry, to minimise or eliminate the impact on individual animals in terms of actual or potential pain, suffering, (dis)stress, and lasting harm, and iv. Responsibility: Who is responsible for animals welfare, adherence to the 3R’s and the proper handling of insentient material of animal origin. Any updates to the 3R’s framework or related frameworks must be accommodated into the considerations by RU-AREC.
3.3	Ethics application	The document or set of documents describing the research or teaching activity requested for ethical approval. The ethics application normally consists of a form and appendices. Some other sources use the term ‘research proposal’ or ‘teaching proposal’ indirectly for an ethics application.
3.4	Ethical approval	The formal prior authorisation from the RU-AREC to undertake the activity proposed in the Ethics application, expressed in the form of a letter. No retrospective ethical approval can be granted under any circumstances.

3.5	Ethics review	The process of reviewing an ethics application aimed to obtain approval by an ethics committee.
	Ethical clearance	Granting of a formal prior authorisation without the need for the complete ethical approval process by RU-AREC for an activity, which involves the use of animals and where RU stakeholders participate in. No retrospective ethical clearance can be granted under any circumstances.
3.6	Institutional Official	It is the Deputy Vice-Chancellor for Research, Innovation and Strategic Partnerships of Rhodes University (in lines with sections 5.2.3.5.1-5.2.3.5.4 of SANS10386:2021). The Institutional Official takes ultimate responsibility for the animal welfare and related aspects of scientific activities at Rhodes University.
3.7	Methodology and protocol	A theoretical underpinning or justification for the choice of methods or approach and a set of rules for the processes applied in the research. Different disciplines do, however, have very different definitions on the details and the structures of a 'methodology' or a 'protocol'. This policy uses the term 'methodology' as a broad understanding of the conceptual and the empirical setup of the research and the term 'protocol' for the processes applied, particularly with respect to the collection of data. In this understanding a 'protocol' forms part of the 'methodology'. (Please note the difference between a research protocol and the protocol appended to a policy)
3.8	NHREC	The National Health Research Ethics Council of South Africa. The statutory body with whom the RU-AREC is registered.
3.9	Principal Investigator	The Principal Investigator (PI) is the RU stakeholder that heads the research project and takes the overall responsibility for conducting the research and/or teaching activities involving animals.
3.10	Researcher	The term 'researcher' encompasses all individuals who are actively involved in research with animals, and they are an RU stakeholder.
3.11	RU stakeholders	These are all of the below-mentioned stakeholders with interest in animal scientific activities and participation in them. They are all academic departments and affiliated institutes of RU, namely - Academic staff employed by Rhodes University on a permanent or contractual basis; - Research associates or senior research associates who are appointed on a honorary basis at Rhodes University; - Undergraduate and/or postgraduate students who are enrolled and studying at Rhodes University (as defined in section 2 of the Student Disciplinary Code of Rhodes University) at the time of the application for ethical clearance; - Postdoctoral and/Visiting Fellows and/or Professors. The above mentioned categories of researchers and students, who conduct research with animals, are referred to as RU stakeholders in further text. All RU stakeholders, RU and its institutes, under whose auspice research and teaching are conducted, have the responsibility of supporting researchers for ethically sound conduct towards animals, animal ethics and animal welfare. In addition to the above stated principles, RU stakeholders supported by RU-AREC

		has had on ongoing cooperation with the National Council of the Societies for the Prevention of Cruelty against Animals (NSPCA) and WESSA.
3.12	SOP	Standard Operating Procedures documents that relate to the use of animals in scientific activities at Rhodes University.
3.13	Teaching	Any class activity, such as lecture demonstrations, laboratory practicals, and student projects, and including field-based classwork and practicals that involve the use of animal and involve or are carried out by RU stakeholders.
3.14	Teacher and lecturer	The person conducting teaching with animals and who is an RU stakeholder. For this policy 'teacher' will be used synonymously for 'lecturer'.

4. PRINCIPLES GOVERNING THIS POLICY

SCOPE

4.1	According to the SANS10386:2021, scientific purpose is defined as follows: "scientific purposes - use of animals in any animal study (see 3.6) including but not limited to the use for research, testing, teaching, training, validation, production or observation". Scientific purposes are equivalent in meaning to scientific activities for the purposes of this policy. A formal ethical consideration (with prior approval by the RU-AREC) is required for the use of animals for any of the following scientific purposes (SANS10386:2021): a) to advance knowledge; b) to test a hypothesis; c) to supply a product; d) to produce a biological substance; e) to provide and/or use organs, tissues, cells, gametes, biological substances including blood or blood products or serum, eggs, embryos or fetuses in research or teaching; f) to act as a host; g) to impart or demonstrate existing knowledge including the use of animals for teaching (including community engagement); h) to teach or learn surgical and other procedures, techniques or methods, both invasive and noninvasive, including behavioural experiments and procedures; i) to test or collect data on a substance or product, including to comply with statutory requirements (e.g. bioequivalence testing for registration of medicines or bioconcentration/biomagnification studies of an environmental pollutant in a food chain); j) to conduct observational studies, including to make audio or visual recordings. h) scientific activities with lower invertebrates must also be reviewed by the RU-AREC.
4.2	Ethical aspects have to be considered, and a prior application for approval or clearance must be submitted to the RU-AREC, for all kinds of activities performed locally or internationally (these are to be discipline-specific and will be applied on a case-by-case basis), as defined in 4.1 that a) are conducted by RU stakeholders, and/or b) use infrastructure of Rhodes University, and/or c) use participants from amongst RU stakeholders, and/or

	d) are conducted on behalf of or affiliated to Rhodes University.
4.3	The “Rhodes University Policy on Research Ethics – Animal subjects” (hereafter referred to as the RU Policy on Animal Ethics) and the relevant protocols are binding upon all RU stakeholders, as well as externals falling under the scope of this policy.
4.4	Rhodes University and all RU stakeholders understand that they must comply with the SANS10386:2021 as a minimum set of standards for the use and care of animals for scientific purposes in South Africa. This compliance is understood to be extended to the 2015 Guidelines of the National Department of Health for Ethics in Health Research Principles, Processes and Structures; and all its consecutive/updated versions

5. POLICY IMPLEMENTATION

5.1	In standing with requirements from the following national bodies: the South African National Department of Health, the South African Bureau of Standards and the South African Veterinary Council, Rhodes University (RU) establishes an independent standing committee, the ‘Rhodes University Animal Research Ethics Committee’ (RU-AREC). The RU-AREC is a committee of, and has been appointed by, the RU Senate. Therefore RUAREC is a sub-committee of RU Senate.
5.2	In line with the national requirements and principles derived from section 5.1, RU-AREC is an independent committee in terms of its mandate and reporting lines, not directly controlled by any superior authority in relation to and scope of animal ethics and its terms of reference. The RU-AREC is a committee of, and has been appointed by, the RU Senate. Therefore RUAREC is a sub-committee of RU Senate. RU-AREC commits itself to national and international ethical principles and standards, to its policy and protocols on ethics, and to Rhodes University rules and standards for all administrative issues.
5.3	RU-AREC has operational reporting line to the Deputy Vice-Chancellor: Research, Innovation & Strategic Partnerships of Rhodes University (referred to as the Institutional Official in the remainder of this document), and to Senate of Rhodes University through the approval/updates of the RU-AREC Terms of Reference and internal annual reporting. In case of conflicts of interest or other ethical concerns arising with the Senate of Rhodes University, RU-AREC shall report to Rhodes University Council.
5.4	RU-AREC is the official RU body for ethical considerations on the use of animals, and no other internal or external body may be applied in its place, in relation to RU stakeholders and the activities from section 4. However, the RU-AREC may appoint/co-opt other internal or external expertise for facilitation to carry out its mandate. RU-AREC aims to ensure that all activities involving animals are performed in a responsible way and meet relevant standards.
5.5	The decisions of the RU-AREC are binding for the RU stakeholders.

6. ROLES AND RESPONSIBILITIES

6.1	RU has a responsibility to: (a) Ensure, through the operation of RU-AREC, that all scientific activities involving the care and use of animals comply with relevant regulations and national standards. (b) Promote compliance with the relevant standards and regulations governing the use of animals in scientific activities. (c) Ensure and support the effective operation of the RU-AREC .
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	(d) Identify clear lines of responsibility, communication, and accountability. (e) Ensure that all people involved in the care and use of animals understand their responsibilities and the requirements of the relevant regulations and standards, have the necessary skills and knowledge, and have access to appropriate educational programs and/or resources. (f) Regularly monitor and review the institution's compliance with the national standards and requirements of the NHREC through the annual or incident reports made by the RU-AREC to Senate. (g) Once every four years, conduct an independent external review of the RU-AREC operations and institutional operations, accordance with SANS10386:2021. The institution shall provide the AEC with the resources required to carry out its responsibilities (see 5.4) and to maintain the AEC, and respond effectively to recommendations from the AEC regarding resources and workloads. Resources should include a) staffing and administrative assistance, and financial resources, b) orientation and education of the AEC members, c) where appropriate, the reimbursement of out-of-pocket expenses or payment of an allowance to the AEC members (or both), d) ensuring, through the AEC, that all scientific studies and teaching activities which involve the use of animals comply with the relevant national legislation (see foreword) on the use of animals for scientific studies and teaching activities, including, in particular, compliance with the relevant national legislation (see foreword) personnel authorizations for veterinary or para-veterinary procedures, and e) provision of each AEC with facilities, powers and resources to fulfil its terms of reference and operation as set out in 5.4. (2)
6.2	Primary responsibility for ensuring that the Policy and Protocols on Animal Ethics are adhered to rests with the principal investigator (PI).
6.3	Supervisors and all managers, including line managers, on all levels are responsible for developing awareness and providing support to their students and co-workers about ethical considerations, as part of their guiding responsibility in terms of this policy. All RU stakeholders are to conduct themselves in accordance with the relevant RU policies, documents and guidelines that govern the nature of their respectful professional conduct.
6.4	RU-AREC has the authority and responsibility for the following (in line with sections 5 and 7 of SANS10386:2021): (a) proposing the changes to animal ethics policies, SOPs, guidelines and policy briefs/interpretations as necessary, (b) education and information dissemination on animal ethics, (c) critical review and assessment of all institutional systems and practices with respect to animal ethics, transport, breeding, welfare, community engagement, husbandry, and facilities management/procedures; (d) review, approve/reject, monitor, suspend or terminate scientific activities involving animals; (e) visit and review the functioning of animal care and use areas, where RU stakeholders are conducting scientific activities; (f) provide an annual report to RU Senate and the Deputy Vice-Chancellor for Research, Innovation and Strategic Partnerships; (g) an annual report to the NHREC;

	(h) report as required to the external independent review of institutional operations; (i) investigate complaints, non-compliance, concerns and serious incidents and adverse effects about the conduct of scientific activities using animals, and the related wellbeing impacts on RU stakeholders; and take appropriate action; and (j) any other service to support animal ethical considerations within the scope of RU-AREC mandate and in relation to all members of the Rhodes University community and all activities using animals that fall under the ethical responsibility of Rhodes University.
6.5	The Rhodes University community at large is requested to critically reflect on animal ethical issues within the University and communicate these to RU-AREC for consideration.
6.6	RU-AREC has discretion in applying the RU Policy on Animal Ethics where exceptional circumstances or common-sense dictate, provided that the basic principles underlying the policy are not compromised.
6.7	RU-AREC provide support for further ethical questions regarding animal usage as far as expertise is available, e.g. with respect to institutional ethics, ethical conduct, and Animal Ethics as part of an academic discipline.

7. PROCESSES

7.1	Researchers who intend to perform research involving animals shall obtain ethical approval or clearance from RU-AREC prior to data collection.
7.2	Teachers preparing teaching or any class projects that will utilise animals shall obtain ethical approval or clearance from RU-AREC prior to the commencement of classes or project-work.
7.3	This policy shall be made available to all RU stakeholders, and shall be considered by Heads of Departments, Deans and Senior Management in the scope of the academic project at Rhodes University and all its aspects that are relevant to animal ethics.

8. ETHICAL REVIEW

8.1	Any intended research, teaching or other activity that falls under the scope of this policy has to be approved by the RU-AREC.
8.2	An application for ethical approval, signed by the PI, has to be submitted to RU-AREC. Work on the project may not proceed before the approval of the application is given by the RU-AREC through the online ERAS system.
8.3	In student research, students cannot take the role of a PI. The student's supervisor is the PI on a project. Alternatively, another senior researcher, who is an RU stakeholder, can be PI and PI always submits the ethics application on the student's behalf.
8.4	In teaching, the course-coordinator normally takes the role of the PI and the individual lecturers act as Co-Investigators.
8.6	The basic ethical objectives are (a) minimising the harms associated with an activity and (b) the benefits must expectedly outweigh the harms. The application must provide clear information for evaluating both objectives.

8.7	Methodology for a scientific activity, e.g. research/teaching methodology and/or protocol(s) to be applied in them, must be reviewed by RU-AREC after submission of a formal application for ethical clearance/approval which involves the use of animals in research or teaching by RU stakeholders. This is necessary in order to evaluate risks/harms and benefits of the proposed activity as well as to consider if risks are minimal with respect to what can be achieved (e.g. by remedial measures) without significantly compromising the outcome.
8.8	No external ethics committees might be approached for ethical approval by the applicant instead of RU-AREC. If the project has been evaluated by another NHREC registered ethics committee at another institution, the RU-AREC will evaluate the approval by this committee and has the authority to decide whether to accept the external institution's approval in lieu of conducting a full ethical approval process. Multi-institution studies and collaborative project oversight/ethical approval or clearance granting will be handled by reciprocal approvals between RU-AREC and other relevant ARECs. This will be done in line with the SANS10386:2021 and DOH 2015 guidelines.
8.9	The conduct of the review of applications should be collegiate, with the aim of facilitating ethical scientific activities.

9. ETHICAL CONDUCT OF RESEARCH / TEACHING

9.1	The conduct of scientific activities involving the care and use of animals for scientific purposes must comply with the approved protocol and all standard and specific conditions.
9.2	The RU-AREC monitors compliance by reviewing annual and final reports for all approved projects and by any other means deemed necessary or appropriate, such as random audits (which may involve inspection of animals, procedures and associated records used in scientific activities activities).
9.3	All members of a research team have shared responsibility for the ethical and humane use of animals, and must be aware of and satisfied with the degree to which the conduct of the activity meets legislative requirements and RU policy.
9.4	The PI has to ensure that occupational safety and health safety requirements are met for all involved staff, researchers, facilitators and participants. Particular attention has to be given to processes and conditions that do not fall under set categories and where occupational and safety standards have to be applied in analogy to existing rules and regulations.
9.5	The Principal Investigator or Teacher in charge has ultimate responsibility for the care and use of animals and is responsible for ensuring that all personnel involved are competent, receive appropriate training for the procedures they perform, and are adequately supervised by a competent person.
9.6	PIs must ensure that all relevant permits (e.g. collection permits from provincial government agencies) and Gatekeepers' permission are obtained prior to the commencement of the projects, and that research and scientific activities are conducted in line with all relevant legal requirements.

10. REPORTING

10.1	Any adverse effects, changes, discontinuation, and unforeseen events, that occur in scientific activities involving animals and where RU stakeholders are involved, must be immediately reported to RU-AREC. RU-AREC is also the committee that needs to consider
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	and approve/reject any amendments to previously approved protocols prior to them taking affect in the scientific activities/for scientific purposes.
10.2	The RU-AREC will investigate, and attempt to satisfy, objections or concerns that were raised with respect to ethical standards in any ongoing or completed project. The respective SOP of RU-AREC must be adhered to for the particulars.
10.3	RU-AREC may suspend or withdraw approval. In this case it has to inform the Principal Investigator and the hosting institution about the decision made and the reasons. The project or the teaching unit, respectively, must then be discontinued immediately.
10.4	An annual report and regular active monitoring reports must be submitted to the relevant committee throughout and on the completion of every research programme that has been granted ethical approval. The report should include a summary of results and conclusions obtained; importantly, whether there were any unforeseen and undesirable consequences and if so, the steps that were taken to rectify them. For the purposes of this policy, this committee is RU-AREC.
10.5	The report will be kept with the application and the committee reserves the right to access the research findings.
10.6	RU-AREC provides annual reports to the Senate covering ethics matters around animal usage in scientific activities at Rhodes University. The reports will also include any other information that the RU-AREC Chairperson deems relevant.

11. PUBLICATIONS

11.1	Results must not be exaggerated or filtered so as to make funding more likely or a submission more attractive to editors.
11.2	Results should be published if they have academic merit. Withholding, changing or toning down the content are not acceptable practices. Sponsors should not be allowed to comment on results prior to publication. They may not veto, change conclusions, or delay publication. Such aspects should be formalised in a written contract. Publication should proceed regardless of outcomes of the research.
11.3	Authorship and acknowledgements: All persons who have contributed to the originality of the publication shall be listed as authors. Individuals or institutions that have actively supported the research shall be acknowledged in the paper. Individuals or institutions that have supported the research financially must be acknowledged in the publication in order to provide transparency with respect to possible conflicts of interest.
11.4	It is advised to mention in the publication that ethics approval has been obtained and from which committee this was issued.

12. POLICY REVIEW PROCEDURE

The RU reconsiders the appropriateness of this policy every four years, or as necessary.
All Rhodes University standing committees and individuals are welcome to suggest revisions of the policy.
Communication of the review process The review of the policy will be made known to the Senate and Faculty Boards at the commencement and outcome of the review process.

13. POLICY CONTEXT: RELEVANT DOCUMENTS CITED/CONSULTED/ADOPTED

1	Guidelines on Ethics For Medical Research: Use of Animals in Research and Training (Book 3) South African MRC 2004
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2	South African National Standard: The Care and Use of Experimental Animals Standards SA. SANS 10386:2021.
3	Guide for the Care and Use of Laboratory Animals: Eighth Edition , Institute for Laboratory Animal Research, National Research Council of the National Academies, National Academies Press 2011