

**UNIVERSITY OF PRETORIA**

**CODE OF ETHICS FOR RESEARCH**

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## UNDERLYING PRINCIPLES

### Importance of the Code

The University of Pretoria gives particularly high priority to research as one of its most important contributions to South African society and to the international community. In this, the University pursues a research ethos that promotes exceptional expertise as well as ethical responsibility in the quest for knowledge and the development, conservation and transfer of such knowledge.

Consequently, all members of staff and students of the University of Pretoria, like excellent researchers throughout the world, are required always to strive for the highest standards of excellence and morality in any research activities. The Code of Ethics for Research serves as an important guideline to inspire researchers at UP to maintain high ethical standards in all research activities at the University.

### Focus of the Code

The Code identifies key values characterising the ethos which the University pursues. In doing so, it highlights the rights and responsibilities of researchers that should apply in the various relationships they will encounter within the research environment.

It also highlights the endeavours to eliminate unacceptable practices within the research milieu, such as abuse of power within the study guidance environment, discrimination and sexual harassment.

### Key values: The rights of UP researchers

In particular, the following basic rights of researchers are recognised and promoted as far as possible with a view to creating an environment where research can flourish and high quality research outputs can be promoted:

- Academic freedom
- The availability of a caring research environment with efficient policies, management, structures, support services and programmes to promote research
- The use of the University's facilities, services and resources for research.

### Key values: The responsibilities of UP researchers

Researchers at the University have the following responsibilities:

- *Social responsibility*, in terms of which researchers accept the responsibility to address, where possible, by research and technology development the pressing problems in the broader South African communities.
- *Justice*, in terms of which researchers accept the responsibility for the equitable treatment of all individuals and organisations involved in the research process.
- *Benevolence*, in terms of which researchers should be inspired not only to protect others from harm, but also to ensure and promote the well-being of all those affected by research.

- *Respect for the individual*, where the focus is on the interaction between the researcher and all people he/she may encounter during the research process. The researcher is required to recognise the dignity and autonomy of all individuals and to maintain humanity as well as freedom of choice in all situations.
- *Professionalism*, in terms of which it is recognised that researchers form part of a specific profession and therefore should exhibit professional responsibilities such as integrity, quality and accountability.

### **Applying the key values**

These key values apply to the various relationships that may be encountered by researchers during their research. These include their relationship with:

- South African society
- the clients and funders of research
- the University and the broader scientific community
- colleagues and collaborators
- students
- human participants in their research
- animals used in their research.

### **Applying the Code**

All members of staff and students of the University of Pretoria involved in research are required to acquaint themselves with this Code right from the start and to undertake to subscribe to and to apply the principles contained in this Code in all their research activities.

## THE CODE OF ETHICS FOR RESEARCH

### A. DEFINITIONS

**Academic freedom:** The recognition of the right to academic freedom at the University entails the complete protection of freedom of investigation, thought, expression, publication of results and peaceful gathering. It promotes a wide spectrum of meanings, free of institutional intolerance and of internal or external coercion. Association with the University of Pretoria may not encroach upon the constitutional rights of the individual.

**Academic misconduct:** This concept should be seen specifically within the framework of the definition of misconduct in the Statutes of the University. In the research environment this entails any practice that constitutes a serious deviation from what is generally accepted within the scientific community in the submission, performance and reporting of research.

**Animal experiments:** Any procedure which includes the use of live animals with the aim of testing a hypothesis, collecting information, promoting, transferring or demonstrating knowledge, testing or collecting a product, or registering the effect of a certain procedure on animals.

**Autonomous / accountable person:** An individual who is capable of reflecting on his/her personal interests and of acting on the grounds of these considerations.

**Business:** Includes any autonomous individual, sole right, corporation, partnership, firm, undertaking, association, organisation, holding company, joint equity company, trust or any juristic person through which a business is exercised for gain.

**Compensation:** All compensation or anything else of value that is received for services rendered. This can consist of salaries or another form of remuneration, such as goods, shares or other items of significant financial value.

**Conflict of interests:** This arises when the individual's private or personal interests and professional obligations are divergent to such an extent that an independent observer may have doubt as to whether or not the individual's professional actions are influenced by personal considerations, financial or otherwise.

**Consultant:** A member of staff of the University who renders advice in his/her professional field to an outside individual, group or organisation against payment.

**Contract research:** All research projects performed for outside organisations and that are regarded as part of the researcher's service dispensation in terms of the provisions of the Rules for Contract Work of the University.

**Copyright:** The ownership and control of intellectual property in original works subject to the Copyright Act, Act 98 of 1978. This consists in original copyright works captured as a tangible form of expression from which it can be viewed, reproduced or otherwise communicated, whether directly or by means of a machine or device.

**Experimental animals:** Any living non-human vertebrate, non-human foetus of a vertebrate, or any other species which, in the opinion of the Ethics Committee concerned, has a nervous system that is so sophisticated that it can experience pain in the same way as a vertebrate.

**External activities:** All professional activities performed by a member of staff acting as a consultant (see definition above) and including outside work and limited private practice as defined in the University's rules in question. Contract work is excluded from this definition since it forms part of the researcher's service dispensation.

**Family:** This includes any person who is a spouse or in a customary relationship with the employee or who is a parent, child, foster-parent, foster-child, mother-in-law or father-in-law, son-in-law or daughter-in-law, grandparent or grandchild of an employee or a member of an employee's extended family.

**Funders of research:** Institutions or individuals who financially support research in part or in full.

**Gift:** Anything of value that is received and that can be regarded as more than fair compensation for services rendered.

**Human participants in research:** A living individual on whom the researcher is conducting research by (a) collecting data by intervention or interaction with the individual, or (b) obtaining identifiable private information. "Intervention" includes physical procedures by means of which information is gathered, as well as manipulation of the participant or the participant's environment for research purposes. "Interaction" includes communication or interpersonal contact between the researcher and the participant. "Private information" includes information concerning behaviour taking place in the context within which an individual can reasonably expect no observation or recording to take place, and information furnished by an individual for specific purposes and in respect of which the individual can reasonably expect that it will not be made public. Private information should be individually identifiable (i.e. the identity of the participant is ascertainable or can readily be determined by the researcher or can be associated with the information) in order to obtain information that can be regarded as research on human participants.

**Integrity:** The consistent maintenance of ethical values in all words and behaviour.

**Limited private practice:** Rendering a professional service by a professionally registered member of staff in his or her own name in accordance with the provisions of the Rules for Limited Private Practice of the University.

**Member of staff:** Any person in full-time (permanent full-time or temporary full-time) or part-time appointment at the University and who is entitled to benefits and/or a salary or wage for his/her defined responsibilities. This may include undergraduate and postgraduate students appointed to perform work as part of a grant or contract and who are fully or partially responsible for reporting on research.

**Minimum risk:** When the risk of harm expected in the proposed research does not exceed, given probability and extent, the risk that would be encountered normally in daily life or during the performance of routine physical and psychological examinations or tests.

**Open academic environment:** An academic environment which allows the researcher the freedom to pursue knowledge and to share information and results with others. This ensures that, as far as possible and taking into account ethical guidelines and the rights of everybody involved, students are given unlimited exposure to ideas and data, and as far as possible be given unlimited opportunities to become involved in research and to publish results.

**Outside work:** Work performed by members of staff with or without remuneration outside their University work and in addition to the work week, which does not form part of the course and extent of their service to the University and for which they have obtained permission in terms of the Rules for Outside Work of the University.

**Research / research activities:** Any systematic examination aimed at the development of, or contribution to, knowledge that can be generalised. Activities complying with these requirements are regarded as research, regardless of whether they are normally described as "development", "demonstration" or "tuition" or by another term.

**Researcher:** In the context of this Code, this includes any full-time or part-time member of staff or undergraduate or postgraduate student of the University of Pretoria taking part in any research activity.

**Tangible research goods:** Tangible or material items produced in the course of research projects supported by the University of Pretoria or by external sponsorships. This includes items such as biological materials, engineering drawings, computer software, integrated circuit chips, computer databases, prototype devices and circuit diagrams. It differs from immaterial items or intellectual property such as inventions, patents, work subject to copyright and trade marks subject to other policy guidelines. Individual items qualifying as tangible research goods may be associated with one or more immaterial items or intellectual property such as copyright works and patents.

**University:** Is taken to mean the University of Pretoria, unless otherwise stated.

**University resources:** These include, but are not limited to, all facilities, staff, equipment, materials, expertise, information and confidential information of the University.

## B. PREAMBLE

The University of Pretoria gives high priority to research as one of the primary functions of the university community.

It pursues a research ethos that promotes excellence as well as ethical responsibility in the search for and the creation, conservation and transfer of knowledge.

Consequently, researchers at the University are required to pursue the highest standards of excellence and ethical behaviour in all their research activities.

## C. KEY VALUES



In this Code it is accepted that the Constitution of the Republic of South Africa and other applicable legislation will provide the framework within which the following 11 key values are to be interpreted and applied:

- Academic freedom
- An academic environment conducive to research
- The availability of facilities, services and other resources of the University
- Social responsibility
- Justice
- Benevolence
- Respect for the individual
- Professionalism
- Refraining from discrimination
- Refraining from the abuse of supervisory authority
- Refraining from sexual harassment

## **1. THE RIGHTS OF RESEARCHERS**

### **1.1 The right to academic freedom**

Researchers have the right to academic freedom when conducting research. Within the framework of the University's policy and the regulations of departments and faculties, researchers are free to choose the subject of their studies and to seek support for their research from any appropriate source.

Researchers have the right to information required for their research, in so far as there is no legal or moral limitation on furnishing such information. They are free to develop their own theories and to arrive at their own conclusions. They have the right to disseminate the results of their research, without supervision or alterations by external funders, unless this has been stipulated in advance by a signed contract

Subject to the guidelines and conditions as set out in the University's Rules for Outside Work and for Limited Private Practice, as well as in other applicable regulations, they have the right to perform outside work and in some cases to run a limited private practice.

### **1.2 The right to an academic environment conducive to research**

The University has the responsibility to create an environment that promotes research and fosters good researchers. The Management of the University, therefore, has to create an environment in which research can flourish, by, among other things, visionary policy, innovative programmes, sound support services, appropriate incentives, effective financial management and the mobilisation of funding.

At the same time, researchers should be allowed sufficient time and opportunity to become involved in research activities.

### **1.3 The right to the facilities, services and other resources of the University**

The University has the responsibility, in so far as it is feasible, to make facilities, equipment and services available to researchers for use in research and tuition, with a view to the creation of an environment which is conducive to research.

Where the University does not have sufficient resources to give effect to this right, it should endeavour to obtain resources from other sources and to allocate them to researchers, based on fairness and on the academic, educational and ethical merits of the research.

Speculation on the political or social acceptability of the research or the research results may not play a part in this regard.

Where, as a result of limited resources, the University cannot accede to all demands in this regard, it should allow researchers to negotiate facilities, funds and/or other resources from elsewhere for research programmes, as long as no conflict with the University's interests and principles is caused.

## 2. THE RESPONSIBILITIES OF RESEARCHERS

Researchers are obliged and responsible to apply the following key values in their research.

### 2.1 Social responsibility

Researchers should accept that they form part of a broader community and that their responsibilities therefore go beyond the academic environment. Consequently, they should be attuned to the needs and problems of local and national communities in which they are functioning, as well as of the international community. By their research they should address such needs and problems and contribute to the development of prosperous, free and just communities.

### 2.2 Justice

"Give everyone his/her due" ("*suum cuique tribuere*") is the distinguishing normative core content of justice. It refers especially to the fair treatment of the individuals or institutions concerned. Fair treatment of all individuals involved in research should therefore be one of the most important objectives of researchers and research institutions.

At least four aspects of justice are applicable to the research environment:

**Contractual justice** refers to the *fairness of specific agreements and transactions* between individuals and/or representatives of institutions involved in research. For example, copyright should receive proper recognition and compensation should be received for copyright works, where applicable.

**Distributive justice** refers to the *fairness of the distribution* of benefits for a specific community among its members. For example, funds allocated for research should be divided equitably among research institutions and among individual researchers, and the results of research should as far as possible be

aimed at benefiting all parts of society. This includes, for example, the contribution by the researchers to the empowerment of disadvantaged academics and students by offering their assistance, information and mentorship to members of such groups.

**Contributory justice** refers to the *fairness of the contributions requested* from individuals and organisations. Human participants selected for research should, for example, not be selected mainly from certain classes of persons, certain ethnic groups, or persons confined to institutions, but should represent the entire South African community, unless the research project is aimed specifically at a specific group.

**Retributive or affirmative justice** refers to the *fairness of punishment imposed* for crimes perpetrated or offences committed, or the *compensation requested* for rectifying offences. Disciplinary procedures and actions dealing with the contravention of research ethics or regulations should therefore be fair.

### 2.3 Benevolence

In order to conduct research in an ethical way, all parties involved should not only be protected from harm, but efforts should also be made to ensure their well-being. This falls under the principle of benevolence. The term "benevolence" (or "goodwill") refers to generous or charitable behaviour that is not compulsory for everybody.

In this Code, "benevolence" or "goodwill" does, however, refer to an obligation that comes into effect in two general rules that are mutually complementary:

- Do not cause harm, and
- Increase possible benefits and reduce possible harm.

The Hippocratic principle "do not cause harm" has long been regarded as the fundamental principle of medical ethics. This principle can be applied to various spheres of research to indicate that individuals, animals, the environment, etc. should not be harmed for the sake of research, regardless of the benefits that may result from such research. Therefore, researchers should take great care in deciding when it is justified to pursue certain benefits in spite of the risks involved, and when the benefits should be abandoned because of the risks involved.

The obligation of benevolence affects the individual researchers as well as society as a whole, since it relates to specific research projects as well as the entire research industry. In the case of specific research projects, researchers and other members of staff of research institutions are obliged to give prior consideration to maximising the benefits and reducing the risks that may result from the research.

In the case of research in general, it is the duty of members of the public to spot and point out the long-term benefits and risks of the expansion of knowledge and the development of, say, new medical, psychotherapeutic and social procedures.

Since the aim of research should always be the improvement and/or the promotion of the quality of life of humans as well as animals, care should be taken

not to encroach upon the rights of humans and animals during the research process. Researchers should try not only to minimise future harm, but also to eliminate injustices and harm from the past.

## 2.4 Respect for the individual

The principle of respect for the individual can be divided into two moral duties:

- The duty to recognise the autonomy of the individual, and
- the duty to protect persons with reduced autonomy.

To respect autonomy means to respect an autonomous person's considered opinions and not to restrict the person's actions, unless such actions are clearly detrimental to others. To show a lack of respect for the autonomous person means to disregard that person's considered decisions, not to grant him/her the freedom to act in terms thereof, or to withhold information that is essential for making a considered decision when there is no compelling reason to do so.

On the other hand, not every individual is capable of self-determination. The ability to make decisions develop in the course of the individual's life, and some persons lose this ability in full or in part because of disease, mental derangement or circumstances seriously limiting freedom. Respect for the immature or unaccountable person requires that such persons should be protected while they are becoming mature or while they are unaccountable.

## 2.5 Professionalism

Researchers should ensure that they comply with the professional standards of the occupation. They have the following professional responsibilities:

**Integrity:** The individual integrity of every researcher should be irreproachable at all times, since the collective integrity of individual researchers constitutes the very cornerstone of science. Every researcher should be able to rely on the truth and objectivity of the reports of other scientists.

**Quality:** Researchers are responsible for the academic character, accuracy and reliability of their own research and of anything done under their supervision. For this reason, research should be limited to the academic, technical and financial competence of the researcher. Researchers should always apply the highest standards of excellence with regard to the planning, implementation and reporting of research.

**Accountability:** Individual researchers should be held responsible for the originality of their work, for the complete disclosure and reporting – to the academic community as well as the general public – of all applicable procedures, theories and data used during the research process, and for maintaining financial control.

## 2.6 Refraining from discrimination

Discrimination is any action resulting in the services, benefits, opportunities and/or facilities of the University being withheld from someone on the grounds of race, gender, sex, pregnancy, marital status, family status, ethnic or social origin, colour, sexual orientation, old age, disability or medical condition, religion, conscience or beliefs, culture, language and birth. Discrimination also includes any communication, whether oral, written, electronic or non-verbal, that promotes a lack of respect or intolerance towards specific individuals or groups.

No researcher may, directly or indirectly, unfairly discriminate against any person on any one or more of the above grounds, except if such treatment of the person is in the interests of the person himself/herself.

The University strives to create a work environment that will support and reward its members of staff and students on the basis of applicable factors such as work performance and research success. Discrimination has a negative effect on this environment and should therefore be avoided at all costs by researchers. In terms of the Labour Relations Act, No 66 of 1995, discrimination is regarded as an unfair labour practice. **[PLEASE NOTE: THE 1998 ACT WAS MERELY AN AMENDMENT ACT TO AMEND ACT 66 OF 1995.]**

## **2.7 Refraining from abusing supervisory authority**

Abusing supervisory authority includes any form of conditional, or apparently conditional, granting of services, benefits, opportunities or facilities on the grounds of performance or events not related to the academic achievement or work performance of the person being supervised.

Such abuse of authority can take place even if it is not aimed at benefiting the supervisor concerned and even though the results thereof do not hold any benefit for him/her.

As in the case of discrimination, this practice has a negative effect on the research environment and should be avoided at all costs by researchers. This is also regarded as an unfair labour practice in terms of the Labour Relations Act of 1995.

Persons with supervisory authority over individuals immediately related to them, or persons with whom they have a close relationship, tend to cause a conflict of interests and are strongly advised either to relinquish the academic or work supervision of the person concerned, or to obtain permission (for example from the head of the department or the dean) to carry on in the capacity concerned, with the establishment of adequate preventive measures.

## **2.8 Refraining from sexual harassment**

The University of Pretoria is an academic and educational institution striving for the creation of a non-sexist, non-discriminatory work, living and learning environment for everybody, where it will be possible for everybody to realise his/her full potential. This University recognises that the protection of human dignity and the discouragement of offensive actions form an integral part of such environment and recognises that sexual harassment is an unacceptable

encroachment on the core values of human dignity, privacy and mutual respect, and is a form of unfair discrimination.

The University Council, Senior Management, staff and students are co-responsible for combating sexual harassment on campus. To honour this responsibility, the University community has agreed on the Sexual Harassment Policy, which forms the framework within which the researcher's behaviour is to be judged.

Researchers should avoid the following within the research practice:

**Intimidation:** Any action in terms of which a person exercises pressure, applies coercion or by threats tries to convince another person to act in a way that the latter person would not have done out of his or her own free will (regardless of whether or not the effort was successful).

**Sexual harassment:** Any action with a sexual connotation or undertone which could result in criminal prosecution or a delictual claim as well as any unlawful action in terms of which an individual's right to a safe, non-intimidating work, living or learning environment is affected by, among other things –

- (a) unsolicited sexual overtures;
- (b) requests for sexual favours where the person making the request is in a position of making, among other things, appointments, promotions or positive academic and other performance judgements;
- (c) humiliating and/or offensive verbal and non-verbal actions with an explicit or implicit sexual connotation or undertone.

**Victimisation:** The unlawful prejudicing (or threat of prejudicing) of a person (member of staff or student) exercising or enforcing his/her rights or trying to exercise and/or enforce such rights.

## **D. APPLYING THE KEY VALUES**

The key values should be applied within the various relationships in which the researcher operates. Within these various relationships, more specific rights and responsibilities are applicable.

### **1. RESEARCHERS AND SOUTH AFRICAN SOCIETY**

#### **1.1 South African society**

Researchers at the University of Pretoria are committed to carry out research that will contribute to the well-being and quality of life of all South Africans. With their research they should at all times endeavour to serve the South African community as a whole, rather than sectional interests. They should therefore recognise the right of the community to have access to research findings and information in as far as it does not encroach upon the right to confidentiality of clients, funders or participants in research.

Researchers should be attuned to spot and expose inequalities and injustices in society. By means of research, service and technology they should actively assist in eliminating inequalities in South Africa.

#### **1.2 The government of the day**

The government of the day identifies certain priorities with regard to urgent socio-political and economic issues in South African society. The University recognises on the one hand the need for fulfilling specific political, economic and health needs by means of research, and on the other hand the importance of promoting science in general. Both aspects should receive attention in the research programmes of researchers at the University. Researchers should be aware of the priorities concerned as identified by the government of the day and should try to contribute to the national well-being and prosperity. However, they must not be forced to confine their activities only to the immediate priorities of the government of the day.

The essence of the University as an institution lies in its capacity to combine excellence in the creation and conservation of knowledge with the establishment of life skills and values, with a view to ensuring the responsible and effective use of knowledge to the benefit of the local and worldwide communities. Researchers at the University have the responsibility to promote knowledge as well as wisdom by pursuing truth with regard to all aspects of life.

#### **1.3 The environment**

Where a scientific investigation involves the physical or biological environment as subject of investigation, the researcher should go out of his/her way to prevent any irresponsible intervention in such environment.

Where a scientific investigation includes the use or the production of hazardous substances, care should be taken to ensure that the risks to the environment, to

community life and to human beings and animals that may come into contact with such substances after conclusion of the investigation, are kept within acceptable limits.

Where an investigation involves viruses, micro-organisms or plants, the objective thereof should be ethically justifiable. Procedures should make provision for the required level of biosafety in the given circumstances and for the protection of the environment and human beings or other organisms that may be exposed to risks during the investigation.

## **2. RESEARCHERS AND CLIENTS OR FUNDERS OF RESEARCH**

Research conducted for clients and funders who prescribe specific objectives is subject to the normal conventions of contract research and also to the applicable University Rules for Contract Work, which includes contract research.

### **2.1 Conflict of interests**

Any conflict of interests should be avoided, and all researchers are requested to make known any potential conflict of interests. Interference by clients or funders that could compromise the integrity of the research is unacceptable. Information regarding the identity of participants in contract research will not be made available to funders, unless the individual participants agree.

### **2.2 Confidentiality of research results**

Agreements with clients and funders of research are subject to the principle that the University undertakes to make research results freely available to the public within a specified and limited time framework and in a responsible manner.

### **2.3 Financial obligations**

Remuneration agreements for participants and researchers should be set out in the contract or in the conditions of grant (often based on a funding application), as well as other approved budgetary items.

Although the legal agreement for the funding of a specific project is between the funder and the University of Pretoria, the general responsibility for the financial management of a funded project rests with the project/programme leader. Funds should be spent within the confines of the contract or grant, and in the event of any overdrawn account it is the responsibility of the project/programme leader to redeem this overdrawn account by transferring the necessary funds to an appropriate account.

### **2.4 Equipment control**

Control of both University and state property is usually determined by external contracts and allocations as well as by University policy. Project/programme leaders are responsible for the required approval for purchasing equipment, for reporting it to the University and for ensuring that it is property marked, and also for the removal thereof where necessary.



## **2.5 Funds for new fields of research**

The costs of the preparation of research proposals and other activities in support of new fields of research may not be offset against funded projects or project costs intended for other purposes. Such costs should be recovered from other free sources.

The costs of proposals with regard to continued research may be offset against the funds of the existing projects.

## **3. RESEARCHERS, THE UNIVERSITY AND THE BROAD SCIENCE COMMUNITY**

### **3.1 General conduct**

Researchers should be guided by a profound conviction of the value and dignity of the promotion of knowledge, and should recognise the particular responsibilities imposed on them in this way. Their primary responsibility is to pursue and present truth as they see it. For this reason they should, among other things, dedicate their energy to the development and improvement of their academic competence. They should also exercise critical self-discipline and judgement in their decisions regarding the use, expansion and dissemination of knowledge.

Researchers may not abuse their position as researchers for personal gain. Although they may consider their own secondary interests, these interests may never hamper or compromise their freedom of investigation. Research should always be conducted in a particularly academic and responsible manner.

Researchers should accept responsibility for –:

- the design, methodology and execution of their research;
- the planning of research in such a way that the findings will be credible and valid;
- reporting their findings, and the limitations thereof, so that such findings can be subjected to peer evaluation and be made available to the public; and
- pointing out alternative interpretations where this may be applicable.

When making known their results and findings, researchers should subscribe to the principles of honesty, completeness, intelligibility, clarity, accountability, and exposure to public testing. Where applicable, the authority of professional codes in specific disciplines should also be recognised and respected.

Researchers should respect the right of fellow researchers to choose from a variety of paradigms, methods and techniques.

The University has the right to submit to audit procedures the quality of research, the ethical acceptability of research procedures as well as the financial aspects of the research. Researchers should be prepared to submit themselves to procedures in this regard established by the University or by clients of the University, as well as to peer evaluation to ensure the excellence of their research.

### 3.2 Academic misconduct

Academic misconduct should be considered within the framework of the definition of misconduct in the Statutes of the University. Misconduct within the research environment should be avoided at all costs. If a researcher is found guilty of academic misconduct, suitable action against the person concerned will be taken as set out in the University of Pretoria's conditions of service and disciplinary code.

The following actions should be avoided:

- Failure to give proper acknowledgement to the inputs of collaborators.
- Fraudulent inclusion or reporting and manipulation of factual information.
- Plagiarism as the appropriating of literary work, or portions of such work, by someone else, and the presentation thereof as if it were the guilty person's own work.
- The unauthorised use of confidential research results (research theft) where this is not in accordance with acceptable academic or collegial behaviour.
- The unacceptable acquisition, allocation and abuse of funds allocated for research purposes.
- Retribution of any nature against a person who has acted in good faith in reporting suspected or alleged academic misconduct or in giving information in this regard.
- Unlawful and unauthorised use of University property and equipment.
- Violation of copyrights or any other form of intellectual property right.
- Abuse of research by postgraduate students for their own purposes.
- Failure to comply with research tasks forming part of work duties.
- Undermining other individuals' fundamental rights in the execution of research.

### 3.3 Conflict of interests

Academic members of staff may not allow other professional or outside activities to distract their attention from their primary responsibilities towards the University. They should maintain a significant and professionally acceptable presence on campus during each semester in which they are on active duty. Holidays and leave should be in accordance with the University's regulations.

They should create an atmosphere of academic freedom by promoting the open and timely disclosure of the results of their academic activities, by ensuring that their advice to students and postdoctoral associates is not influenced by personal interests, and by disclosing external activities that could affect the free flow of academic information between themselves, students and colleagues.

Researchers may use University resources, including facilities, staff, equipment, information or confidential information as part of contract work, provided that the University is compensated in terms of the provisions of the Rules for Contract Work of the University. Researchers may not use University resources for any purpose other than purposes related to tuition, research or service by the University, unless prior permission has been obtained by the head of the department and/or the dean, as provided by the University's regulations.

Researchers should disclose in good time all potentially patentable inventions that have been discovered or created in the course and within the ambit of their service to the University. Ownership of such inventions should be dealt with in accordance with the policy of University. The inventors will, together with the University, share in the benefits or royalties earned in accordance with the provisions of the University's Intellectual Property Policy.

Researchers should inform the University whether they (or members of their families as defined in **Definitions** above) have consultation agreements or work in an outside institution, before the following proposed arrangements or agreements between such institutions and the University of Pretoria will be approved: a) gifts; b) funded projects; c) technology licensing agreements; and d) allocations.

In such cases formal University permission will be required before the proposed arrangements or agreements can proceed.

### 3.4 Intellectual property

The provisions of the University of Pretoria regarding intellectual property are set out in the University's **Intellectual Property Policy**. Researchers should be aware of all the provisions and should submit themselves to all the control mechanisms and guidelines of the University.

Some of the more important principles underlying this Policy are the following:

- The promotion of free and creative work to the benefit of science and society as a whole
- The conservation of traditional university practices and privileges with regard to the making available and publication of academic works
- The establishment of ethical standards and procedures with regard to intellectual property
- The promotion of creative and innovative research and cooperation by the establishment of mechanisms recognising the rights of all the parties concerned, promoting the acquisition of benefits from research, and guaranteeing the equitable distribution of benefits from research by –
  - establishing principles and procedures for distributing revenue from inventions and creative work,
  - protecting and marketing the University's assets, including its intellectual property, to the benefit of all interested parties.

## 4. RESEARCHERS AND THEIR COLLEAGUES OR COLLABORATORS

### 4.1 Authorship

Since academic work is informed by a multitude of sources offering concepts and information, it is essential to emphasise rightful acknowledgement in the presentation of ideas and the publication of manuscripts. Authorship should be awarded only to those persons who have made an original and significant

contribution to the conceptualisation, design, execution and interpretation of the published work.

Individuals who have made smaller contributions by for instance giving advice, performing analyses or providing subject material, or who have supported the research in some other way, should also be acknowledged. The principal author should determine whether or not these individuals should be included as authors. Sometimes written permission has to be obtained for acknowledgement in the published work and even the format thereof is prescribed by the party concerned.

In the case of co-authorship, questions arise as to the criteria for inclusion as author, the ability of each author to evaluate all aspects of the study and the sequence of the list of authors. Authors should discuss these questions openly and should make appointments before undertaking a co-author project. The author submitting the work, or the principal author, is responsible for coordinating the completion and submission of the work and for ensuring that all the contributions and all the collaborators are given proper acknowledgement. All authors should approve the final version of the manuscript and should be prepared to accept responsibility for the work in public.

Each author or co-author is responsible for the compilation, revision and verification of those parts of the manuscript, publication or presentation representing his/her contribution. All co-authors are entitled to making their own copies thereof, including figures and attached documents.

In factual or scientific reports, authors should go out of their way to quote applicable data, including those data not supporting the hypothesis proposed. It is the responsibility of the author(s) to be *au fait* with other appropriate publications and to quote from them.

It is unethical, and harmful to the academy, to present as one's own the work of others, whether in part or in full, to fabricate research results or to omit or change information.

Authors who wish to quote information obtained at a personal level or from unpublished written material should obtain written permission from the source.

It is inappropriate and unacceptable to submit extracts from research, or reports on the same research, to more than one publisher, unless such action has been approved by the editors of each publication or multiple submission is the acceptable standard practice in the specific discipline or field. In the complete report on the work in question, reference should be made to preliminary extracts from work that has already been published.

#### **4.2 Selecting research partners**

Researchers have the right to select research partners on the grounds of the value and quality of the work of other researchers in the field, provided that both partners are able to make a significant contribution to the joint project. Researchers are encouraged to undertake joint research projects with colleagues

of other local and foreign institutions and to promote inter- or multidisciplinary research or to take part in such research.

In such instances, researchers should ensure that they are familiar with the contents of the relevant policy documents of the institutions concerned, for example the intellectual property policy, and that effect is given to the applicable provisions thereof, provided that this is not in conflict with the University's regulations and policy.

### **4.3 Assisting with the research of others**

Researchers should strive to assist and support other researchers from disadvantaged communities and social groups by means of advice, information and cooperation.

A researcher who takes part in the research of another researcher, whether it is a University colleague or an outside person, does so as a professional person and is therefore accountable for his/her actions. The decision to take part must be based on the following information:

- The research protocol/plan
- Procedures for obtaining a participant's permission
- The extent of inputs required from the researcher.

A researcher who takes part as collaborator in the research as a fieldworker or data collector (and who did not take part in the planning) is obliged –

- to work according to the research protocol/plan;
- to report on any additional information that was collected in the course of the fieldwork and that may influence the research;
- to stick to the research schedule, and
- to give notice in good time if his/her involvement is going to be terminated.

The researcher is entitled to terminate his/her involvement in the research in due course after consultation or after giving notice and taking into consideration specific commitments.

If the researcher is more than a fieldworker or collector of data and also takes part in the planning of the research and/or analysing the data, his/her contribution should be acknowledged in any resultant publication. The extent of the acknowledgement should be negotiated in advance.

Research partners should be informed of the outcome of funding applications and of the research findings and outputs.

### **4.4 Health and safety**

The University is subject to the provisions of the Occupational Health and Safety Act, Act 85 of 1993. Researchers at the University should therefore do everything in their power to –

- protect the health and safety of fellow researchers, postdoctoral associates, members of staff and students;
- ensure a safe work environment for fellow researchers, postdoctoral associates, members of staff and students;
- supply information regarding safety and health risks to fellow researchers, members of staff and students;
- identify and rectify health and safety risks and to encourage fellow researchers, members of staff and students to report risks;
- supply information and safety measures to those on campus and in the adjoining community regarding environmental risks that may result from a specific project;
- comply with the regulations of their department or institution regarding health and safety mechanisms.

Researchers should be committed to strict programmes for the prevention of accidents and injuries and to compliance with all environmental, health and safety legislation and regulations. Good health and safety procedures are a responsibility of every researcher, member of staff, student and the University itself.

If a project is conducted away from the University's grounds, alternative and appropriate safety measures should be taken so as to protect as far as possible University members of staff, postdoctoral associates, visiting lecturers, students and University equipment, and to minimise risks.

## **5. RESEARCHERS AND STUDENTS UNDER THEIR SUPERVISION**

### **5.1 Supervising students' academic work**

Academic institutions are responsible for teaching students and preparing them to enter society and to practise their disciplines according to high ethical standards. However, this applies not only to the formal presentation of courses. The University and its staff have an obligation towards the broad academic community, the students and the public to ensure that all students involved in academic and research activities do so with responsibility and with respect for the highest professional standards.

Study leaders, research leaders and administrative heads share the responsibility for providing an open and equal research environment which protects the interests of students, assistants and other vulnerable persons undergoing training. They must ensure that students are given fair acknowledgement for original work, that students are not taken advantage of for the study leader's own research purposes, that demands made on students are reasonable and that they are treated as peers with the same professional courtesy.

Opportunities should be created for students who feel that their supervision or training is inadequate, to bring the matter to the attention of the study leader, research leader or, where necessary, the administrative head concerned. Study and research leaders should regularly meet with students, colleagues and other collaborators to evaluate the work and progress being made.

Study and research leaders should serve as role models and should maintain the highest standards in the performance of research. They should encourage students to critical and independent thought and to share ideas and information with other members of the academic community. They should ensure that the experience gained by the students will contribute to preparing them for their future as independent researchers.

Particular attention should be paid to the elimination of inequalities and backward situations experienced by certain students as a result of discrimination and injustices of the past.

## **5.2 Training of postgraduate students in research ethics and integrity**

Ethical issues in the carrying out of research should form an integral part of the training of all senior undergraduate and postgraduate students. Study and research leaders are responsible for providing a training environment in which issues relating to ethical values are discussed freely. A study leader should require students to have at least a basic understanding of research ethics and should encourage them to be able to identify and deal with the ethical issues relating to their research, results and publications.

Every lecturer is responsible for the establishment and execution of the principles of research ethics among students and research staff under his/her supervision. An introduction to the concepts and principles of research ethics should form part of the orientation of all postgraduate students. Study and project leaders should also serve as role models for students in the manner in which they conduct their research.

## **6. RESEARCHERS AND HUMAN PARTICIPANTS IN RESEARCH**

### **6.1 Basic principles**

In their relationship with human participants in the research process, researchers should consider the principles of respect for personal autonomy, benevolence and justice. It is important to understand that these ethical principles do not exist in isolation from each other.

Furthermore, good judgement and sensitivity are required in the application of potentially conflicting principles, as are often found in this type of research. An awareness of potential conflict should lead to the development of useful strategies for combating conflict.

### **6.2 Applying the principles**

#### **6.2.1 Evaluating risks and benefits**

In the planning and execution of the study, the researcher must always consider the ethical applicability and foreseeable consequences of the research. Determining the risks and benefits of the research requires a careful collection of relevant data and, in some cases, alternative methods for achieving the benefits aimed at in the research. In particular, the researcher should care about the

interests of vulnerable participants such as children, disabled persons and the aged.

**The nature and extent of risks and benefits:** The requirement that research can be justified only on the basis of a favourable risk/benefit evaluation is closely related to the principle of benevolence. The term "risk" refers to the possibility that research could result in harm. The term "benefit" is used in the context of research to refer to something of positive value with regard to health and well-being.

Various types of possible harm and benefits should be considered. For instance, there are risks of psychological harm, physical harm, social harm and economic harm, and the corresponding benefits. Although the most probable form of harm with regard to participants in research will be psychological or physical pain or injury, other possible types of harm should not be overlooked.

The researcher should protect participants in research against foreseeable physical, psychological or social harm or suffering that may be experienced in the course, or as a result, of research. When research has unforeseen or undesirable consequences, the researcher is responsible for identifying and, where possible, rectifying these consequences.

Risks and benefits of research may have an effect on individual participants, the families of individual participants and the community as a whole (or specific groups of participants in the community). A minimum requirement is that the risks for participants should be exceeded by the sum of the expected benefits for the participants, if any, and the expected benefit for the community in the form of knowledge obtained by the research. When these aspects are weighed, the risks and benefits for the participants in the research are of particular importance.

**The systematic evaluation of the risks and benefits:** The ideal of a systematic, non-arbitrary analysis of the risks and benefits should be pursued as far as possible. This ideal requires that those persons taking decisions regarding the justification of the research are thorough in the collection and evaluation of information concerning all aspects of the research, and that alternative possibilities should be considered systematically. The validity of the presumptions for the research should therefore be determined, and the probability and extent of the risks should be pointed out as clearly as possible.

Finally, in the evaluation of the justification of the research, at least the following considerations should be taken into account:

- Brutal or inhuman treatment of human participants is never morally justified.
- Risks should be reduced to those risks that are essential for achieving the objective of the research. It should be ascertained whether it is indeed essential to use human participants. It will probably never be possible to completely eliminate risk, but risk can be reduced by careful consideration of alternative procedures.
- When research implies a considerable risk with regard to serious harm, Ethics Committees should put exceptional emphasis on the justification of the risk



(where the likelihood of benefit for the participants or, in certain exceptional cases, the clearly voluntary nature of participation, is usually taken into account).

- When vulnerable communities are involved in research, the applicability of their involvement in the research should be indicated. In this judgement, a number of variables are important, including the nature and degree of the risk, the condition of the community or individuals concerned, and the level of expected benefits.
- Risks and benefits to be expected should be clearly indicated in documents, and procedures should be applied to obtain informed permission.
- Research and the pursuit of knowledge should never be seen as the highest objective at the cost of other personal, social and cultural values.

### 6.2.2 Informed consent

Respect for persons requires that participants, to the extent that they are capable, should be given the opportunity to choose what will or will not happen to them. This opportunity is offered if satisfactory standards of informed consent are complied with. Before participation in research takes place, a clear and equitable agreement with participants should therefore be arrived at. Indemnity should also be obtained from the participants.

There is wide consensus that the process of consent should include the elements of information, understanding and voluntary participation.

**Information:** In deciding the quantity and the type of information to be made known, the following should be ascertained to ensure that sufficient information is given to participants: The research procedure, the objective thereof, the risks and expected benefits, alternative procedures (in the case of therapy) and a statement making it clear that the participant has the opportunity to put questions and to withdraw from the research at any time. Information on how participants are selected and particulars of persons responsible for the research may be added.

However, merely a list of items does not answer the question of what the criterion should be for determining the quantity and type of information to be supplied. The criterion of the "reasonable volunteer" should be used: The extent and nature of the information should be such that persons, even if they know that the procedure is not essential for them to be cared for, and even if they do not understand everything, are able to take a reasoned decision concerning their participation in the promotion of knowledge. Even if the procedure implies direct benefit to them, participants should understand the degree of the risk and the voluntary nature of participation.

A special problem occurs where furnishing information to participating parties in all probability will influence the validity of the research. In many cases it is sufficient to indicate to participants that they are invited to take part in research where certain aspects will not be made known until the research has been completed. In

all cases of research with incomplete disclosure, such research can be justified only if it is clear that –

- incomplete disclosure is really necessary for achieving the objective of the research;
- there are no undisclosed risks for the participant that are greater than minimal; and
- there is an adequate plan for informing the participants, when appropriate, and for disclosing the research results to them.

**Understanding:** The way and the context in which the information is conveyed are as important as the information itself. For example, presenting the information in a disorganised and hurried manner, allowing too little time for questions, may have a negative effect on the person's ability to make an informed choice.

Since the participant's ability to understand is a function of intelligence, rationality, maturity and language usage, it is essential to adapt the presentation of information according to the participant's abilities. While there is always an obligation to ensure that the information concerning the risks to participants is understood completely and adequately, this obligation becomes more important when the risks are of a more serious nature.

Special precautions should be taken when understanding is considerably limited, for example in cases of immaturity, minority or mental deficiency. Each class of participants having a lack of understanding (for example, babies or young children, mentally deranged patients, terminally ill persons and patients in a coma) should be treated in their own terms. Even for these persons, respect requires that they are given the opportunity, to the extent to which they are capable, to choose whether or not to take part in the research.

Respect for persons also requires that the permission of other parties be obtained in order to protect the participants from any harm. The third parties selected should be a person who is well acquainted with the participant's situation and who can and will act in his/her best interests. The person with the authority to act on behalf of the participant should be given the opportunity to observe the research as it occurs, in order to be able to withdraw the participant from the research if this is in the best interests of the participant.

**Voluntary action:** An agreement to take part in research is considered to be valid consent only if it is given voluntarily. This element of informed consent requires circumstances free of coercion and of undue influencing. Coercion takes place when a threat of harm is presented deliberately by one person with a view to obtaining the other person's consent. Undue influencing takes place when an undue, unauthorised or inappropriate compensation is offered with a view to obtaining consent.

Unjustifiable pressure usually takes place when people in positions of authority or great influence – especially where possible sanctions are involved – demand certain action from a participant.

The researcher should respect the right of the individual to take part in the research and to withdraw at any stage.

### **6.2.3 Selection of participants**

Just as the principle of respect for persons is expressed in the requirements for consent and the principle of benevolence in risk/benefit evaluation, the principle of justice brings to the fore the moral requirement that there should be fair procedures and outcomes regarding the selection of the participants in the research.

Justice applies at two levels regarding the selection of participants: the social and the individual level. At the *individual* level, it is required that researchers should exercise fairness in the selection of participants; they should therefore not offer potentially beneficial research only to certain patients enjoying their favour, or they should not select "undesirable" persons for potentially dangerous research. At the *social* level, justice requires that a distinction be made between groups of people that should not take part in the research concerned because the load would be too heavy for them or because they are already overloaded, and groups where this is not the case and who should therefore take part in the research. On the basis of this consideration there should be an order of preference in the selection of different classes of participants (for example, adults before children), and some classes of potential participants (for example, institutionalised mentally deranged persons or prisoners) should be used as participants only on the grounds of certain conditions, if at all.

It may happen that certain groups, such as racially based minority groups, the economically less privileged, seriously ill persons and institutionalised mentally deranged persons, are continually being targeted as research participants since they are readily available in the environments where research is conducted. Given their dependent status and the fact that their ability to give informed consent is limited in many cases, they should be protected against the danger of being involved in research merely for the administrative convenience thereof, or because they can be easily manipulated because of their illness or socio-economic position.

### **6.2.4 Privacy and confidentiality**

Respect for the autonomy of these participants in research is the ethical basis for the recognition of participants' right to privacy. Privacy means a sphere of exclusivity which makes it possible to decide what private attitudes, behaviour and standpoints will be disclosed on public forums and what will be kept private and will be shared with only a few selected intimate acquaintances, for example relatives, friends, or law or health advisers.

Privacy enjoys high priority, not only because certain information can be regarded as humiliating or in other ways injurious to the participant, but also because privacy is essential for intimate, personal and spiritual relationships (i.e. those relationships that are sometimes regarded as "holy").

When a participant in research confides in a researcher, the researcher is obliged not to share this information with others without the participant's permission, except if there are laws to protect the public interest (for instance, the compulsory notification of child abuse). Breach of confidence can cause irreparable harm in the relationship of trust between the researcher and the participant, as well as in the relationship with other individuals and parties.

In order to understand what information can be regarded as private and confidential by prospective participants, it is essential to have a participant-oriented perspective. For instance, a matter that is public within the researcher's culture, may be private in the culture of the prospective participant. In some cases the type of research is sensitive (for example, if it relates to a person's sexual or psychological history). In other cases even the disclosure of certain aspects of a participant's identity may be regarded as violation of privacy (for example, certain participants may be more comfortable with researchers of their own sex or status). In certain cases it could be the context of the research (for example, an authoritarian or oppressive institutional context, as in countries where police use research data to trace opponents of the government). The location of research (for example, a clinic for sexually transmitted diseases) and the researcher's style could be seen as potentially undermining factors of the participant's privacy.

There is widespread social consensus regarding the right of prospective participants to privacy and the concomitant duties of researchers to treat certain information in a respectful and confidential manner. This is reflected in social practices and in legislation on the freedom of information and the protection of privacy. Researchers should always be aware of applicable legislation within their jurisdiction and should make themselves acquainted with the expectations that participants may have with regard to privacy and confidentiality.

In view of the rapid development of information technology, researchers must take suitable steps to ensure that confidential information is safeguarded. There is considerable public interest in the extent to which researchers are allowed to have access to certain private information, not only to expand knowledge, but also to achieve a number of social objectives, such as the establishment of adequate public healthcare programmes and maintenance of the democratic process. The researcher should ensure that there is a favourable balance between the participant's right to privacy and confidentiality and the researcher's pursuit of knowledge and beneficial research.

It is important to note that the information collected in a research project may be shared with the participant in the research (for example, in the case of the discovery of important genetic information concerning participants and their biological relatives) or, in suitable circumstances, with those persons who have a professional relationship of care with the participant (for example, the interaction between a medicine being investigated and other medication which is used by the participant). With the necessary consideration and care, researchers may develop suitable methods and practices for the collection, conservation and use of private data.

Information obtained from research that may disclose the identity of the participant should be considered as confidential, except if the participant agrees to such information being made known.

It is important to note that these guidelines should be interpreted within the context of the Helsinki Treaty and the *ICH Tripartite Guidelines for Good Clinical Practice*.

## **7. ANIMALS USED IN RESEARCH**

### **7.1 General remarks**

The main objective of an experiment involving animals is to obtain reliable data from which high quality scientific information can be obtained. Animals subjected to field tests and clinical tests are included in this category. These experiments with animals must have a clear and rational objective and must be essential.

In dealing with experiments with animals, strategies to refine the methodology and operative procedures should be applied as a fundamental obligation with a view to reducing the number of animals used and, where possible, replacing the use of animals *in toto* with an alternative approach or experimental system.

People involved in research with animals furthermore have the obligation to respect the interests of laboratory animals and to recognise that they are sensitive to pain, that they may become anxious and that they may experience fear if they remember such experiences.

The following guidelines should be applied to ensure the ethical and productive use of animals in the biomedical, agricultural, veterinary and biological sciences.

### **7.2 Applying the principles**

#### **7.2.1 Planning and preparation**

An experiment with animals should be planned carefully and scientifically in accordance with the available knowledge regarding the problem being studied and the questions being put. It should be designed in such a way that the results, whether positive or negative, will not result in the justification for the experiment being questioned.

Initially, a written protocol should be prepared as a document for approval by the relevant Ethics Committee of the University and also by a relevant research committee where this is required by the faculty. No experiment or tuition involving animals may commence before such approval has been obtained.

#### **7.2.2 Selection of experimental animals**

The selection of the most suitable animal species for a given research objective is fundamental to the successful design of the experiment. It is recommended that persons with expertise in the biology of laboratory animals and their health and disease conditions be consulted before a final selection is made.

It should be noted that this selection sometimes does not get sufficient attention or is unnecessarily based on tradition, habit or irrational considerations rather than on scientific criteria. The need for defined laboratory animals (i.e. animals defined in terms of health, microbiological status, genetical characteristics, uniformity/similarity and other criteria) may be applicable in making this selection. The use of *in vitro* biological systems and theoretic modelling systems should for ethical, practical and financial reasons be considered as an alternative to the use of laboratory animals if it can produce data of equally good or even better quality.

### **7.2.3 Avoiding or minimising discomfort, anxiety and pain**

A humane approach in animal experiments relates to the elimination or minimising of the pain, anxiety and discomfort that may be caused by the experimental method applied. Important for the elimination or alleviation of these conditions is the ability to predict the occurrence thereof and/or clinical signs thereof in specific species. Caring for experimental animals should therefore be the responsibility of persons who are well qualified by training and experience (veterinarians or qualified laboratory animal technologists) and who are sensitive to the manifestation of pain, fear, discomfort and anxiety in commonly used laboratory species.

Laboratory animals may not be subjected to pain, discomfort or anxiety in animal experiments, except where the information obtained from such experiments is of exceptional importance. In such a case, a thorough ethical evaluation will be the decisive factor.

### **7.2.4 Limited use of laboratory animals**

Animals that have already been used in an experiment may not be subjected to any further procedures, except if the first procedure was of a minor and non-radical nature and the use of such animals in further projects has been sanctioned by the relevant Ethics Committee of the University.

### **7.2.5 Euthanasia**

Euthanasia means killing animals using methods that cause rapid unconsciousness and death without pain and anxiety. Euthanasia may be essential at the conclusion of an experiment either to get rid of animals or to make an end to pain and anxiety that cannot be relieved by drugs or other treatment, or where it may be expected that the pathological changes caused by the experiment could be accompanied by serious disease or radical physical changes and disability (for example the growth of tumours and the collection of body fluids).

Terminal points for such experiments should be determined in advance and criteria should be established for the determination of such terminal points. Research protocols should offer guidelines for the application of euthanasia to animals during or at the conclusion of experiments. Methods of euthanasia should be in accordance with those used in veterinary practice and should be described in detail in the research protocol.

Euthanasia should be compulsory in the case of an experimental procedure that fails or if anything happens that may compromise the validity of the collection of research data from experimental animals. In the last-mentioned case, the collection of data from the animal should be terminated for scientific as well as ethical reasons.

A veterinarian or suitably qualified and registered person in terms of the applicable Act will have the decisive authority in deciding whether an experimental animal should be withdrawn from the experiment and killed.

The selection of specific agents and methods for euthanasia will depend on the species involved and the objectives of the protocol. Euthanasia should be performed by members of staff who are competent in the method appropriate to the species concerned. It should be performed in a professional and merciful manner. Animals killed by euthanasia may not be removed before a careful clinical examination has determined that the animal is dead.

### **7.2.6 Minimising pain, anxiety and discomfort**

In all animal experiments the clinical care of animals should be at a high standard and in accordance with accepted veterinary practices so that pain, discomfort and anxiety may be eliminated or minimised, or limited to the parameters specifically determined by the relevant Ethics Committee.

Caring for laboratory animals during the period after completion of the procedure should be aimed at reducing or eliminating the pain and discomfort caused by the experimental procedure. When an experiment causes unavoidable pain, anxiety and discomfort, analgesic or other suitable drugs should be used to prevent or reduce such conditions. In the event of radical operation procedures, the use of anaesthetics as prescribed in veterinary practice is compulsory.

The only exception that may be made to this principle is where such practices would interfere with the objectives and the collection of valid data in an experiment. Such exceptions may be approved only by the relevant Ethics Committee of the University and will be subject to careful evaluation and consideration with regard to the extent of the benefits that may result therefrom as against the extent of pain, anxiety and discomfort that will be caused.

A veterinarian or suitably qualified and registered person in terms of the applicable Act of Parliament should be appointed to supervise studies where there is a likelihood of pain, anxiety and discomfort being caused.

### **7.2.7 Animal care and accommodation**

The clinical care of animals used in experiments should be under the direct control of a veterinarian or suitably qualified and registered person in terms of the applicable Act of Parliament and should be implemented by a qualified and registered laboratory animal technologist or veterinary nurse.

Farming with animals should be on a high standard and the animals' need for water, food, sanitation, sleep and waste removal and the control of diseases

should be taken into account. Animals should be cared for daily by a qualified person, including during weekends and holidays, to ensure their well-being and to comply with research requirements. Emergency veterinary services should be available after office hours and during weekends and holidays. In an emergency, security personnel should be able to contact persons responsible for caring for the animals.

Care should be taken to eliminate disease, injury, overpopulation and stress factors and to protect animals from infection with ecto- and endoparasites. Environmental conditions in cages or animal rooms should be maintained within the parameters specified in the guidelines contained in the documents below. Consideration should also be given to the animals' social needs in terms of physical contact and communication by means of visual, auditive and olfactory signals. Where applicable, animals should be kept in social groups.

### **7.2.8 Training and tuition**

It is the responsibility of the head of the academic section where the research on animals is conducted, to ensure that the persons performing animal experiments are well qualified. This requires that such persons should receive formal training in the laboratory care of animals and also, where necessary, use the programme offered by the University to teaching and research staff.

### **7.2.9 Legal obligations**

It is compulsory for all users of laboratory animals to take note of and to comply with the statutes and provincial ordinances applicable to the use of domesticated and wild animals. These include:

- The Animals Protection Act (Act No 71 of 1962)
- The Animal Diseases Act (Act No 35 of 1984)
- The National Parks Act (Act No 57 of 1976)
- The Nature Conservation Ordinances of the provinces of South Africa
- The Convention on International Trade in Endangered Species (CITES).

### **7.2.10 Public policy statements regarding the use of laboratory animals**

Principles for the care and use of animals in tests, research and training have been established by various national and foreign public bodies. These statements contain detailed information on the standards of keeping, caring for and using animals.

The University of Pretoria recognises and supports the following important public policy statements:

- *The National Code for the Handling and Use of Animals in Research, Teaching, Diagnosis and the Testing of Medicine and other Related Substances in South Africa*, Department of Agriculture, July 1990
- *Guidelines for the Ethics for Medical Research*, South African Medical Research Council, 1993



- *Guidelines for the Care and Use of Laboratory Animals*, British National Academy for Science, 1996
- Helsinki agreement regarding experimental animal research, 1989