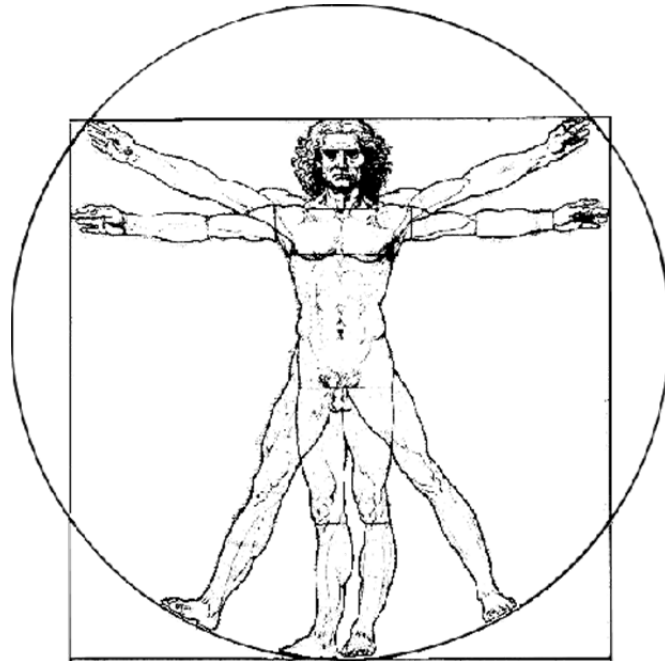


**DEPARTMENT OF  
HUMAN KINETICS AND ERGONOMICS**



**HKE Handbook 2017  
Postgraduate Students**

*General Information*  
*Timetables*  
*Course Outlines*  
*Examination Information*



**RHODES UNIVERSITY**  
*Where leaders learn*

This handbook contains all relevant organisational information for HKE postgraduate students in 2017. Please study it carefully at the beginning of the academic year and follow the instructions. No excuse will be accepted for ignorance when rules are violated.

Dates and locations are subject to change. Please check the departmental notice board for updated information.

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Grahamstown, January 2017

Department of Human Kinetics and Ergonomics; Rhodes University

## 1 Departmental Information

This section contains various departmental information. For further information, please regularly consult the departmental notice boards or from the departmental website: <http://www.ru.ac.za/humankineticsandergonomics>.

### 1.1 Location

The Department with all its lecture rooms, laboratories and offices is located in the Human Kinetics and Ergonomics (HKE) building in upper African Street (between Croft Street and Warren Street; before the Sports Administration Building and next to the Rhodes Health Suite; on the University map in Rhodes calendar buildings G2 and G3).

### 1.2 Departmental Staff

#### Departmental Staff

	<u>phone</u>	<u>email</u>
Mrs J McDougall (Office Administrator)	046-603 8471	<a href="mailto:j.mcdougall@ru.ac.za">j.mcdougall@ru.ac.za</a>
Prof C Christie (Head of Department)	046-603 8470	<a href="mailto:c.christie@ru.ac.za">c.christie@ru.ac.za</a>
Dr S Zschernack (Senior Lecturer & Acting HoD for first semester of 2017)	046-603 8472	<a href="mailto:s.zschernack@ru.ac.za">s.zschernack@ru.ac.za</a>
Mr A Todd (Senior Lecturer)	046-603 8469	<a href="mailto:a.todd@ru.ac.za">a.todd@ru.ac.za</a>
Mrs M Mattison (Lecturer)	046-603 8471	<a href="mailto:m.mattison@ru.ac.za">m.mattison@ru.ac.za</a>
Dr J Davy (Lecturer)	046-603 7369	<a href="mailto:j.davy@ru.ac.za">j.davy@ru.ac.za</a>
Mr L Goodenough (Technical Officer)	046-603 7366	<a href="mailto:l.goodenough@ru.ac.za">l.goodenough@ru.ac.za</a>
Mr B Ryan	046-603 8471	<a href="mailto:g08R5157@campus.ru.ac.za">g08R5157@campus.ru.ac.za</a>
Mr T Steenekamp	046-603 8471	<a href="mailto:g10S2379@campus.ru.ac.za">g10S2379@campus.ru.ac.za</a>
Fax machine	046-603 8934	

Please feel free to contact the departmental staff members for any query you may have.

### 1.3 Access and Security

All postgraduate students are issued with an office key as well a key to the side door of the HKE Department, allowing access to the Department for studying purposes. A R50 key deposit is payable in cash to the office administrator upon receipt of the keys. This will be refunded when the keys are returned upon completion of the degree. Students are also provided with the alarm code and all staff and students are required to sign in and out on the whiteboard hanging up next to the alarm keypad!

For security reasons the keys to the glass doors in the foyer will only be accessible to staff and the doors will be locked outside of working hours (before 08:00am and after 05:00pm), during lunch (12:45pm to 2:00pm), as well as during the exam and holiday periods.

To discourage criminals from entering the HKE Department, it is each individual's responsibility to ensure that the security of the Department is not compromised by:

- Ensuring the side door is always closed and locked after entering and exiting (DO NOT leave the door ajar when, for example, waiting for research participants to arrive).
- Ensuring that the last person leaving the Department activates the alarm code.
- Being vigilant of strangers entering and exiting the Department.
- Escorting strangers to their point of interest in the Department (e.g. the person they were looking for) as well as show them the way out.
- Reporting any suspicious people in the Department to the Office Administrator or academic staff.
- Keeping your office door locked at all times if you are not physically in your office.

Any violation of the access privileges may result in disciplinary action. Any lost keys will be charged at R50 per key. Cutting of replacement keys has to be done via the Office Administrator - DO NOT have them copied in town!

#### **1.4 Room Allocation / Workstations**

The HKE Department attempts to create an atmosphere that is conducive to studying and research activities. Postgraduate students are therefore provided with workstations in the Department.

The available offices are assigned according to the following rule: students will have the choice in the order of employee status and academic seniority:

1. Teaching assistants
2. PhD students
3. 2<sup>nd</sup> year Masters
4. 1<sup>st</sup> year Masters

Exemptions from this rule require valid reasons acknowledged by the HoD.

#### **1.5 Library**

Please note there is no longer a departmental library. All printed periodicals can be found in the Main Rhodes Library on central campus. Past MSc & PhD theses can be accessed online via the Rhodes University OPAC system: [http://opac.seals.ac.za/search/X?\(rhodes\)+and+\(thesis\)&searchscope=2&Da=&Db=&SORT=D](http://opac.seals.ac.za/search/X?(rhodes)+and+(thesis)&searchscope=2&Da=&Db=&SORT=D). (Click on "Specific Collections" and "RU Theses").

Many past Honours projects can also be accessed online from the Department's Office Administrator. Older projects that are not in electronic format can be obtained from the Department's Office Administrator.

## 2 General Considerations

### 2.1 Plagiarism

Plagiarism is a serious offence and Rhodes University has updated its Plagiarism Policy. Details on procedures relating to plagiarism at a postgraduate level, as well as further information relating to plagiarism can be found in the Rhodes University Plagiarism Policy. Students are encouraged to familiarize themselves with the latest version of the Rhodes University Plagiarism Policy, which can be accessed on: <http://www.ru.ac.za/media/rhodesuniversity/content/institutionalplanning/documents/Plagiarism.pdf>. The staff member in charge of dealing with plagiarism cases for 2017 is Dr. Zschernack (1<sup>st</sup> semester) and Prof Christie (2<sup>nd</sup> semester).

#### **What is Plagiarism?**

Plagiarism refers to the practice of presenting work / material written by someone else as your own, and is thus unethical. Any use of material that is derived from the work of another person constitutes plagiarism unless the source is clearly acknowledged in the manner described below. You will be guilty of plagiarism if, for example, you hand in an assignment under your own name which, either in part or as a whole:

- is copied from an essay or practical report written by another student,
- is copied from a document downloaded from a website,
- is copied from a published article or book chapter, or
- has been written for you by someone else.

#### **How to avoid plagiarism**

Acknowledge the source of the material! When writing an essay or laboratory report in an academic setting it is normal to draw on material written by other people. However, when you do this, it is important that you acknowledge the fact that you have drawn on other people's work. There are standard procedures for doing this - for example, by citing a reference and providing details of the source in a reference list at the end of the assignment. You are expected to do this even where you do not quote directly from your source, but merely express in your own words ideas, concepts, methodologies or arguments which you have taken from that source. In addition, where you quote verbatim from a published source, you must place the quoted material in inverted commas and provide a page number. The only situation in which these rules do not apply strictly is in examinations as these are written without access to books and other reference materials. Please refer to section 7 of this handbook (Format Guide) for details on how to reference in an HKE assignment / thesis.

#### **Disciplinary action in response to plagiarism**

As a University student it is important that you understand and observe the highest standards of ethics, integrity and professional practice in the writing of assignments, laboratory write-ups and research reports / theses.

The Department of Human Kinetics and Ergonomics therefore expects these high standards to be adhered to as a matter of course. Many students think that there is no harm in copying sentences from books and articles when composing any written work.

However, in terms of the policy stated above, the use of even one sentence without acknowledgement constitutes plagiarism and is not acceptable.

### **Senate policy on plagiarism**

The Senate of the University has adopted an overall policy towards the handling of plagiarism. In terms of this policy:

- Departments are encouraged to address the matter in their teaching, and to train students in the correct procedures for acknowledging the sources of material used for assignments.
- Cases of plagiarism must be addressed by disciplinary procedures within the Department or at University level.
- Disciplinary steps may range from giving a warning (for first time and minor offences), to imposing a mark penalty or, in more serious cases, to withdrawing the student's DP.

### **HKE Department policy**

In accordance with the University Plagiarism Policy there are three graded categories of plagiarism – categories A, B and C.

**Category A offences:** these “constitute first time, minor infringements, and are usually handled by the staff member who detects the offence. However, in circumstances where the assessor is a student tutor or demonstrator, it may be appropriate for the matter to be dealt with by the lecturer in charge of the course, or the course co-ordinator, to provide the necessary authority” (p.6).

As a general rule, the following actions are taken should a student be found guilty of plagiarism of a category A offence:

- First minor offence: 20% deduction of allocated mark, and student(s)' name(s) noted within department records.
- First major offence: a mark of zero and name sent to the University's Plagiarism Committee.
- Any second offence: withdrawal of the student's DP and name sent to the University's Plagiarism Committee.

**Category B offences:** these “relate to repeated offences of a minor nature, or to relatively minor offences at a more senior academic level than first year, or to first time, more serious offences, where the offence would not attract a penalty of more than the loss of a DP certificate. Where a member of staff is uncertain as to whether an alleged case of plagiarism constitutes a category A or B offence, this matter should be discussed with the Head of Department, and a decision should be taken that is consistent with previous practice in the Department. In large departments, Heads of Department may delegate this role to a senior member of staff. If a Category B offence is detected, the matter must be referred to the Head of Department or nominee, who must refer the matter to the Departmental Plagiarism Committee for a hearing” (p.6).

**Category C offences:** these “concern major, extremely serious infringements by students which the Departmental Plagiarism Committee deems worthy of adjudication by a Disciplinary Committee of the Senate Standing Committee on Plagiarism” (p11).



## 2.2 "Duly Performed" (DP) rule

Please note that the "Duly Performed" rule applies to all academic departments at Rhodes!

It is particularly important that students understand that no department is obliged to warn students that their performance is not meeting the requirements of the DP regulations of the department.

Students must be responsible for monitoring their own performance. If a department refuses a DP certificate to a student and the student appeals for reconsideration (to the HOD in the first instance and then to the Dean), no consideration will be given to any claim that the student was unaware that performance was such that it did not meet those requirements.

Students are responsible for determining whether they are satisfying the requirements of the department, by checking with the HOD in cases of doubt.

## 2.3 Attendance

Attendance at lectures is compulsory for Honours students and in the case of absence an LOA must be submitted together with supporting documentation. For Honours students 60% of the final mark is based on the modules' class and examination marks, hence attendance at lectures is invaluable. Please also be aware that it is each individual's responsibility to acquire the knowledge required to pass the exams!

Regarding attendance at research seminars, please refer to Section 2.6. It is also expected that all postgraduate students are present in the Department during the day outside of lecture times.

Please note also that postgraduate lectures, exams and holiday dates **DO NOT** correspond with the university's undergraduate term dates. Non-lecturing dates should **NOT** be considered holiday time, but be used for research purposes. It is expected that all postgraduate students negotiate their leave/vacation dates with their respective supervisors.

## 2.4 Activity Profiling

The HKE Department keeps a record of all the HKE-related activities that students choose to be involved in during their time in the Department. The purpose for keeping such a record is that it provides the HKE staff members with a detailed record of involvement that can be reflected on a reference letter, or can be used as motivation when applying for further postgraduate studies.

Such activities may involve being a class representative, tutoring, participating in consultancies, community engagement, or simply administrative assistance, just to name a few. Participation in research activities particularly is considered a huge educational experience, and all students are therefore expected to participate in at least one postgraduate (Honours, Masters or PhD) research project per year. This can be in the form of a research participant (i.e. subject), as an assistant to the main researcher in the laboratory, or for data capturing and reduction.

Please note that the onus is on each student to inform the HKE Office Administrator, Mrs McDougall, of the activities he/she has been involved in, as she will be keeping a record of each student's involvement. The required information includes:

1. Student number
2. Student's full name
3. Year of participation
4. Research Participation:
  - a) Researcher's name
  - b) Research project involved in
  - c) Involvement (e.g. participant, assistant)
5. Teaching and Learning: e.g. Tutor, teaching assistant, lab assistant
6. Consultancy Projects:
  - a) Project (e.g. ergonomics consultancy, medico-legal assessments etc.)
  - b) Specifics of project (e.g. name of company/ patient, title of report, etc.)
  - c) Tasks (e.g. report writing, assessment etc.)
7. Other Departmental Involvements – Tasks (e.g. sorting theses, tidying labs etc.)

## 2.5 Tutoring and Research / Laboratory assistance

The HKE Department offers different positions for tutoring and research / laboratory assistance. This enables students to gain additional experience in teaching. Students are encouraged to apply for such positions as this experience contributed immensely to their personal growth and reflects well in CVs and reference letters.

Each position requires about 6 hours of tutoring / lab demonstration per week during term times (26 weeks per year). Students are remunerated according to Rhodes policy. All tutors and laboratory assistants will receive training.

Dr. Jonathan Davy is the overall Tutorial & Practical coordinator and can be contacted on [j.davy@ru.ac.za](mailto:j.davy@ru.ac.za) or 046-603 7369.

### Tutorial System

Tutorials refer to small formal discussion groups and are held weekly for first and second year students and are designed in such a way as to compliment the lectures by recapping work done in class; no new work is covered in the tutorials. The tutorials will help to consolidate knowledge by providing students with the chance to discuss any problems experienced with the course, particularly with regards to understanding the principles underlying observations and measurements, and developing observational, deductive and interpretive skills.

Each 1<sup>st</sup> and 2<sup>nd</sup> year student must attend one tutorial session each week of the term, on an allocated day of the week (this will fit into each student's timetable), unless the coordinator of the tutorials states otherwise. Tutors allocated to these years are expected to run these weekly tutorial sessions as well as assist in the weekly practicals.

Tutors will receive appropriate training on **Wednesday 22 February from 2:00-5:00pm**. Throughout the year tutors will also meet with the respective lecturer and/or the Tutorial & Practical coordinator on pre-arranged days and times.

All concerns with regards to tutorials should be addressed to the year lab and tut coordinators:

1<sup>st</sup> year: Josie King ([g12d4857@campus.ru.ac.za](mailto:g12d4857@campus.ru.ac.za)) or 046-603 8471

2<sup>nd</sup> year: Ashley De Beer ([g12d4857@campus.ru.ac.za](mailto:g12d4857@campus.ru.ac.za)) or 046-603 8471

3<sup>rd</sup> year: Dale Edwards ([g12e4405@campus.ru.ac.za](mailto:g12e4405@campus.ru.ac.za)) or 046-603 8471

### **Research / Laboratory Assistance**

Only Masters and PhD students are eligible for appointment as research assistants and their duties include facilitation of honours laboratory and research work, as well as facilitating HKE 3 laboratory exercises and assessing lab reports.

## **2.6 Research Seminars**

The purpose of research seminars is to engage in critical discussions with all academic staff and postgraduate students. The research seminars will consist of two components:

- 1) Debates, discussions of current issues in our discipline, exchange of information of research activities within the Department, feed-back from conferences, guest speakers etc. It is compulsory for **ALL** postgraduate students to attend these.
- 2) Research practice seminars - consisting of practical skills training in research methods, use of statistical software, advanced word processing etc. These seminars are compulsory for Honours, but voluntary for MSc and PhD students.

All seminars will be held on **Thursdays from 10:00am to 12:00 noon**. Please consult the Research Seminar programme which will regularly be communicated to all staff and postgraduate students via e-mail. Cases of absence of a compulsory seminar require LOA submissions.

## **2.7 Student feedback and participation**

Students are asked to participate actively to the department by providing feedback and suggestions on how to improve and meet student needs. Any comments or requests are welcome to the departmental staff at any time.

### **Communication**

In order to provide clear and confident communication between students and staff, the course coordinators and the class representatives are advised to meet once each term to exchange information and discuss upcoming problems. Both representatives shall discuss issues with her/his colleagues before and after this meeting to get a broader audience addressed.

Course coordinators:

HKE Honours: A Todd

HKE Masters & PhD: A Todd

### **Performance monitoring**

Staff endeavour to provide students with feedback about their performance in tests and assignments within two weeks of submission. A preliminary class record mark based on the assignments and tests completed is published by the department at the end of each term. Students are asked to make use of this opportunity to monitor their own performance regularly and request support early enough.

## 2.8 Ethical Approval of Research Projects

All research projects that involve humans as participants have to be approved by the departmental ethics committee. The HKE Ethics Committee acts on behalf of the Rhodes University Ethical Standards Committee and consults it whenever necessary. For more information on the Ethical Standards for Research on Human and Animal Subjects, please visit: <http://www.ru.ac.za/research/research/ethics/>.

The current HKE ethics committee (elected for Jan 2017 to Dec 2017) consists of:

Miriam Mattison (chair)	Candice Christie
Andrew Todd	Swantje Zschernack
Jonathan Davy	Oledapo Olagbegi
Lee Pote	Ben Ryan
Travis Steenekamp	

Every research project has to submit the standardized form obtainable from the Office Administrator before any pilot studies or data collection is started. Explorative studies / pre-pilot studies (e.g. for familiarization with equipment) do not require ethical approval, but need to be performed with the supervisor's consent and use only senior HKE students as participants. Ethical principles of beneficence, justice and respect have to be upheld during these explorative studies.

The ethics application has to be submitted to the chair of the HKE Ethics Committee who will process the application in consultation with two other committee members, ideally within two weeks' time. It is however acknowledged that this process may take longer during the busy times (e.g. before Honours start testing) and students must take this into consideration in their time management.

The outcome of the discussion will be communicated to the researcher and his / her supervisor in written form. This might be an approval, an approval with set conditions, a request to rework the application, or a rejection of the application (with reasons provided). Any changes in the experimental protocol must be communicated to the chairperson of the HKE Ethics Committee and approved before testing begins. Minor changes to the protocol only require resubmission of the affected part of the application form, but in the case of major changes a completely new application may be required.

## 2.9 Social Functions

The HKE Department also encourages more informal interactions between undergraduates, postgraduates and staff by organizing the following functions. All HKE students are invited to attend these functions. Details will be announced closer to the time.

- Graduation Tea: Friday 21 April at 3pm
- Cocktail function (organized by the 2<sup>nd</sup> years): TBA
- Postgraduate Farewell: TBA

Other visiting lecturers, guest speakers or functions will be announced via the HKE notice boards or via email.

## 2.10 IT Infrastructure

### 2.10.1 Central Registration of Computers

Central registration of personal computers allows internet access, a shared hard disk ("HKE-common") and printer access. Private computers of students and staff members may be connected to the departmental network after registration at the IT division. This can be done by connecting a non-registered computer to the network and requesting any website with the used web-browser. The registration form will appear automatically. The Department's Technical Officer will provide you with the URL.

### 2.10.2 Access to Central Hard drive & HKE Common Directory

The HKE Department has a central hard drive which provides a 2000GB safe storage space for all research data, documents etc. The data are automatically backed up and stored at two different places, so it should be safe against hard disk crash, computer theft etc. This hard drive can be used by postgraduates to store their data and thesis on this hard drive, as lab computers are highly volatile in terms of unwanted deletion of data by others, disk crash or theft. No excuses will be accepted for lost data that was not stored on the HKE drive! However, this drive should not be used for private purposes and the HKE Department reserves the right to check folders on this drive should there be suspicions of misuse. Access to selected folders on the HKE Common Directory can be arranged by speaking to the office administrator. Please be aware that this drive is only accessible within the departmental network!

### 2.10.3 Photocopying and printing services

**Photocopies** (and, if technology permits, printouts from flash stick to the photocopier) are 35c per copy (this may be subject to change).

*Instructions:* Please ask the Office Administrator for the "access code" and postgraduate printing and photocopy book. Make your copies and then write down the number of copies made. The Office Administrator will sum up the amount due to the Department and inform the students of the cumulated amount each term. Payment can also be done in advance to the Office Administrator.

**Laser printing:** the Department has a laser printer dedicated for student printing. This machine is linked to each student's 'iprint' account and the costs for printing are automatically deducted. When printing to any other departmental laser printer, the number of pages must be recorded in the Office Administrator's printing and photocopy book. The Office Administrator will sum up the amount due to the Department and inform the students of the cumulated amount each term (35c are charged per page printed – this too may be subject to change).

**Setting up iprint:** Go to Ross, printing balance link, check balance. Left hand tab – install printer from *iprinta*. Select HKE student and follow prompts. At the beginning of the year the Office Administrator and/or Technical Assistant will aid in connecting students' private computers to 'iprint'.

**Connecting to HKE Printer with Apple** – if the problem occurs when you try download the Printer Driver and it fails to login with your credentials.

- Uninstall the iPrint client
- Reset the printing system from the printing preferences in systems prefs on MAC. (right click to get option)
- Install the iPrint client again (on <http://iprinta.ru.ac.za/ipp/pdisplay.htm>)
- Then try download the driver for HKE students on the same link as above.
- Credentials should work.

**Colour printing** can be done via the Office Administrator's DeskJet colour printer and is charged at R4 per page (subject to change). If you intend to use the colour printer, bring your file on a flashstick to the office administrator.

**Scanning** can be performed using the photocopy machine. Please consult the Office Administrator to assist you.

## 2.11 Research Equipment and Laboratories

Apart from several desktops, the HKE Department has laptops for data acquisition and a variety of sophisticated as well as non-electronic research equipment. These are stored in the various laboratories of the department or in the technician's office.

**This equipment is expensive; hence UTMOST CARE is required during its use!** The Department reserves the right to charge students the cost of repairing or replacing equipment damaged, lost or stolen due to negligence. If you intend using one of the electronic equipment, please consult the allocated "expert" for assistance (see **Error! Reference source not found.** below).

**All equipment and laboratory space must be booked via the technical officer and office administrator (for equipment) and the respective laboratory managers (for laboratory space). Please note that lectures and practicals have first option on the use of equipment and laboratory space.** When in doubt, please consult timetables and/or the relevant lecturers or lab coordinators. Equipment removed from their respective rooms / laboratories **must** be signed out. After use the equipment **must be returned and signed back in**. During data collection a key for the relevant lab/room you can be signed out from the Office Administrator for the duration of your testing.

**Table I:** Electronic equipment available in the HKE Department

Equipment	Room	Expert
Quark b <sup>2</sup> – ergospirometry system	24	Christie
K4b <sup>2</sup> – portable ergospirometry system	24	Christie
Cortex Metabolic System	24	Pote/Christie
Piezo Pedometers	9	Christie
Polar & Suunto heart rate watches and belts	24	All

Gait Analysis Walkway	20	Todd
Vienna Test System – for cognitive and psycho-motor testing	29	Zschernack
Dikablis Eye Tracker	29	Zschernack
Audiometer and luminance meter	29	Zschernack
Force Platform	30	Zschernack
OSI CA 6000 – measures spinal ROM	30	Mattison
Neurocon Balance Master – specialized rehab force platform	30	Todd
Biodex – isokinetic dynamometer	28	Todd
Lumbar Motion Monitor	30	Todd
Megawin EMG	24	Zschernack
Zebris 3D Motion Analysis System	24	Mattison
TechnoGym Treadmill	24	Todd/Christie
Concept 2 Rowing Ergometers	24	Todd/Christie
Wattbike	24	Todd/Christie
Chatillon Dynamometers	24	Todd
Data Logger	24	Zschernack/Mattison
Thermographic camera	25	Davy/Christie

## 3 Honours Course in HKE

Course coordinator: A Todd (email: [a.todd@ru.ac.za](mailto:a.todd@ru.ac.za), phone: 046-603 8469)

### 3.1 Admission

Minimum requirement for admission is a Bachelor Degree in Human Kinetics and Ergonomics or any other Bachelor course providing the required basic knowledge. Final admission will be based on merit, depending on number of applicants, staffing and laboratory equipment resources. In past years, applicants with marks of at least 60% to 65% in HKE 3 were accepted. It must be noted however that second year marks are also referred to, as well as involvement in HKE-related activities, such as participation in research, community engagement and/or consultancies.

### 3.2 Expectations of an Honours Student

Pursuing postgraduate studies requires developing certain skills and competencies that offset a postgraduate student from an undergraduate student. In accordance with the South African National Qualifications Framework, the HKE Department expects an Honours student (NQF Level 8) to develop the following learning outcomes (*adapted from the South African Qualifications Authority – Level Descriptors for the South African National Qualifications Framework; November 2012*).

The student should be able to:

- Demonstrate knowledge and engagement in an area in the forefront of the discipline, understand the theories, research methodologies, methods and techniques relevant in the field and understand how to apply such knowledge in a particular context
- Interrogate multiple sources of knowledge and evaluate them (knowledge literacy)
- Select, apply and transfer appropriate standard procedures, processes or techniques to unfamiliar problems
- Demonstrate the ability to use a range of specialized skills to identify, analyse and address complex or abstract problems (problem-solving)
- Identify and address ethical issues
- Access, process and manage information
- Present and communicate academic professional and occupational ideas and information
- Demonstrate the ability to operate effectively within a system
- Apply, in a self-critical manner, learning strategies which address his/her professional and on-going learning needs (life-long learning)
- Demonstrate the ability to take full responsibility for his / her own work, decision-making and use of resources (self-responsibility).



### 3.3 Structure of the HKE Honours Degree

The HKE Honours course consists of 5 compulsory seminar modules, as well as a research project.

#### 3.3.1 Seminar modules

Seminar modules provide students with knowledge background. Half-day seminars contain lectures, interactive work and laboratory practicals. The modules are taught throughout the year and are compulsory. Although lecture times may vary slightly from one lecturer to another, the times for the lectures are generally Mondays – Fridays from 8:30 – 13:00. Please consult Table II for the various modules on offer and their dates. It is however expected that students are **in attendance** (i.e. physically present in the Department) for the **full day**. The afternoons should be dedicated to lab and project work.

A compulsory HKE Honours Orientation Day will be held **Tuesday 14 February 2017**. Seminars will commence the next day and will be held at the HKE Department in Rm 26 (former HKE library) from Mondays to Fridays on the dates shown in Table II. Please check the HKE Honours board for details.

It should also be noted at this point that even though no lectures are scheduled during the Rhodes vacations, it is expected that students dedicate this time to the research projects and may be expected to remain in Grahamstown. Each student's project supervisor has to be consulted and informed about leave times.

**Table II:** Lecture Outline for HKE Honours modules

Term	Module	Lecturer	Dates
1	Research Methods	S Zschernack	Wed 15 Feb – Fri 10 Mar
2	Chronobiology	J Davy	Mon 13 Mar – Fri 26 May
	Biomechanics	A Todd	
<p style="text-align: center;"><i>Research Methods: Tuesday 13 June</i></p> <p><i>Examinations: Chronobiology &amp; Biomechanics: Tuesday 20 – Thursday 22 June (48 hour exam)</i></p>			
3	Physiology	C Christie	Mon 17 Jul – Fri 25 Aug
4	Ergonomics Risk Assessment	M Mattison	Mon 4 Sep – Fri 20 Oct
<p style="text-align: center;"><i>Physiology: Monday 7 November</i></p> <p><i>Examinations: Ergonomics Risk Assessment: Monday 14 November</i></p>			

#### 3.3.2 Research Practice Seminars

These seminars will be offered as part of the Research Seminar series and include practical skills training including the use of statistical methods, the Statistica software,

advanced Word and Excel skills, reference managers, ethics etc.

### **3.3.3 Research Project**

The objective of the research project is to introduce students to empirical research through the investigation of a kinesiology or ergonomics study. Emphasis is on the conceptual development and the scientific rigour students apply during the course of this project. Throughout the year students will be assessed on various 'steps' of the projects, as well on the process by their supervisor, i.e. how they conducted themselves during the course of the project's duration, and the final product (assessed by the supervisor plus AND a second examiner from the HKE staff).

The length of the report should be in the format of an extended manuscript / journal article and be restricted to 25 pages, excluding references and appendices. For a detailed break-down of how to structure a long empirical report, refer to the Basic Format Guide on p.37.

#### **Topics**

The research projects will start at the beginning of the first term with a variety of topics being presented and discussed during the Honours Orientation Day on **Tuesday 14 February**. These topics generally fall in line with research interests of the academic staff. Students will be required to submit three choices of topics after which the academic staff will allocate research projects and supervisors to students. Efforts will be made to grant each student his / her primary choice, while also taking teaching, research and supervision loads of academic staff into account.

#### **Interim Presentation and Submission**

On **Thursday 25 May**, Honours students will present their project progress (background, problem statement and hypotheses) during an extended research seminar.

The first three chapters of the research projects have to be submitted on **Friday 2 June**, which, along with the presentation, will count 30% towards the final report mark.

#### **Ethics Application**

Shortly after the May presentation, but prior to each project's pilot studies and data collection, students are required to submit an Ethics Application to the HKE Ethics for approval. Please refer to section 2.8 for more details on research ethics and its application process. Processing takes **at least 2 weeks** and often requires a resubmission. It can therefore take up to a month for final ethical approval to be granted, so take this into consideration for your project's time management.

#### **Data Collection**

During the data collection / experimentation phase students will be requested to book the required laboratory and equipment. This can be done via the technical officer and office administrator (for equipment). Intended use of laboratory space should be reported to the technical officer. **Please refer to 2.11 and 2.12.**

This is necessary as all Honours projects (and sometimes Masters' research) run concurrently and many may need to use the same equipment and / or laboratory space. Due to the limited availability of equipment it may also be required of students to perform their testing during the Rhodes vacation or after hours (evenings or weekends). Consideration of fellow students is required when booking equipment and labs - please only book a slot if you definitely will be testing then. Please also note that lectures and practicals have first option. Consult the timetable and relevant lecturers in this regard.

Data collection should ideally be completed by the end of the July vacation.

### **Project Hand-in**

The deadline for the research report is **31 October by 4:00pm**. Students should each submit their project (ONE document) in electronic format (MSWord or PDF) to the HKE Office Administrator ([j.mcdougall@ru.ac.za](mailto:j.mcdougall@ru.ac.za)). Photographs of data collection should also be submitted, along with ALL raw data and Statistica files. The date on the project should be the year of study (NOT the year of graduation as for Masters and PhD theses). This project will be marked by the supervisor, as well as a second examiner from the HKE staff cohort, and will count 40% towards the final mark.

Please consult the Format Guide (section 7) when structuring your report.

### **Project Presentation**

Based on the examiners' feedback students will present their projects on **20 & 21 November 2017** during which they will explain, discuss and defend their projects in front of HKE staff and peers, and possibly the external examiner. This presentation will count 10% towards the project mark.

### **Poster**

The Microsoft Publisher template for the poster can be obtained from the Office Administrator.

The deadline for the poster is on **Friday 21 November 2017 by 4:00pm**.

### **Assessment Criteria**

Assessment of the research project is based on a number of criteria and 'milestones' reached during the project process. These include marks allocated for the interim presentation and initial submission of the first three chapters, the final report and presentation, as well as the student's conduct during the research process.

Process criteria include: self-responsibility of the student, original contributions from the student, rigour in data collection and processing, amount of supervisor feedback required, requirements for supervisor intervention, timing and resource allocation.

Assessment criteria for the Project Report include: problem identification, methodological set-up, rigour in data collection, rigour in data analysis, interpretation of results/discussion, formal correctness and writing (spelling and grammar), poster. Table III provides a break-down of the components making up the research project mark.

### 3.3.4 Field trips

Field trips are arranged by the relevant lecturers as part of their modules. Advanced notice of when and where these field trips will be taking place will be given to students closer to the time, as these are dependent on the relevant industry.

### 3.3.5 Contribution and support for other departmental activities

The HKE Department is also involved in various “expert services”, such as community engagement, high performance testing, ergonomics consultancies, training courses and office ergonomics. Interested students are encouraged to become involved in these activities. (Refer to section 2.4 on “Activity Profiling”)

## 3.4 Assignments and Examinations

Each Honours seminar module will be examined at the end of each semester and examinations will consist either of a written exam, a practical exam or a combination of the two. Examinations will be held in-house to allow a suitable timetable arrangement for all students’ module choices. The final mark for the honours degree will consist of:

**Table III:** Mark composition for HKE Honours class.

	Contribution	
Modules (Class record & Examinations)	60%	All module assignments will contribute to a module mark and all modules carry equal weight (12% per module). Each module will have either a written examination, or a practical exam, or a combination of written and practical. The exact examination requirements for each module will be announced by each lecturer. The class record and the examinations contribute in equal proportions towards the module mark.
Research Project	40%	The project mark itself consists of the following components: <ul style="list-style-type: none"> <li>• Interim presentation and first submission of chapters 1,2,3 (30%)</li> <li>• Written project mark: Supervisor and second examiner mark (40% contribution towards research project mark)</li> <li>• Process mark: supervisor only (20%)</li> <li>• Presentation (10%)</li> </ul>
Final mark	100%	

## 3.5 Course content

### Seminar module “Research methods”

Lecturer: S. Zschernack

This module will focus on the question of how to set up and carry out research on human responses. Such knowledge is not only important for research, but equally for application of human factors in the light of the complexity of human responses in real environments.

The module highlights the basic theories of scientific research and their implications on the way we study the Human Factor. It builds a link between the practical question and the set-up of appropriate analysis and evaluation, starting from rather immediate

responses and developing further to more complex effects, such as cumulative effects on health, coping effects with overload and fatigue, studying human reliability etc. This is complemented by an extended view on human factors analysis methods that are necessary to ascertain human responses in vivo.

Furthermore, this module includes practical considerations of carrying out basic and applied research as well as intervention programs.

- Research paradigms
- Basic types of research
- Qualitative and quantitative research methods
- Validity and accuracy of studies
- Statistical methods (e.g. Analysis of (Co-)Variance, Factor-/Cluster Analysis, Canonic correlation)
- Task Analysis
- Analysis, measurement and interpretation of human responses
- Human Fatigue
- Human Reliability
- Human activity under extreme conditions
- Types of study for Human Factor Analysis
- Intervention strategies
- Particularities of Industrially Developing and Industrially Advanced Countries
- Project Planning
- Scientific writing
- Cost benefit analyses

### **Seminar module 'Chronobiology, Sleep and Human Health and Performance'**

Lecturer: J. Davy

The course aims to provide a more detailed overview of the history of circadian rhythm and sleep research, from which students should have a solid basis to understand how human performance and health are intricately related to / affected by these factors. The course is grounded in examples from both sporting and working contexts. In the sporting context, the focus of course emphasises how different elements of athletic performance are affected by time of day and sleep related factors and how these factors can be used advantageously to improve training benefits and maximise performance. In the context of work, the course focuses on the impact of shift work and extended work periods on human health and safety, drawing on examples from a variety of occupations. During this part of the course, students will gain insights into the plethora of risks associated with atypical work hours, while also appreciating the impact of individual / lifestyle factors that contribute to risk in occupational settings. The course concludes by introducing students to Safety Management and Fatigue Management Systems, the understanding of which is critical to reducing the negative effects of irregular working time.

#### 1) General Introduction to chronobiology

- History of Chronobiology Research/What is Chronobiology
- Basics principles of circadian physiology
- Ontogeny of the circadian rhythm
- The role of circadian rhythms in sleep regulation

- Introduction to the two and three process models of sleep regulation
  - Circadian rhythms, sleep and cognition
- 2) Circadian rhythms, sleep and physical performance: getting the most out of your athlete
- Human physical performance, sleep and circadian rhythms: considerations and mechanisms
  - Effects of sleep loss on performance
  - Training and time of day
- 3) Shift work, fatigue and fatigue management
- Introduction to shift work and extended working hours
  - Understanding the risks associated with atypical and extended work hours
  - Theoretical models used to explain why these risks occur
  - Identify individual factors that influence an individual's ability to cope with / tolerate shift work
  - Introduction to Fatigue management systems / Safety management systems: understanding how to holistically manage risk in a work place

### **Seminar module 'Biomechanics'**

Lecturer: A. Todd

The Honours module in biomechanics provides insight into advanced biomechanics focusing on issues specific to both ergonomics and sports science. It is comprised of two sections: "Biomechanics of the Lower Back" and "Biomechanics of Human Locomotion: Economy and Efficiency".

The first section will provide a comprehensive understanding of biomechanical considerations of the back as this area is of key concern with regard to injuries at work, sport and for rehabilitation.

- How big a problem is it?
- Models to determine risks
- Calculating forces – Comparison between sport and working environments – implication for task design
- Musculoskeletal system implications
- Risk Factors
- Pathways to lower back disorders
- Biomechanical logic
- Assessment of spinal loading
- Static and dynamic models (Ergo Imager 3D SSPP, Ergo web)
- NIOSH
- Lumbar Motion Monitor
- What really causes injury
- Types of injury and prevention of injury

The second section will provide students with an advanced understanding of biomechanical considerations in human locomotion. Economy and efficiency of human

movement are two biomechanical concepts that are imperative in the optimization of physical performance, regardless of the context. As such an understanding of these concepts is imperative for anyone interesting in sports science and/or ergonomics.

- Mechanics and relationship to energy expenditure
- Walking economy – a practical investigation
  - Energy cost of walking at a constant speed
  - Mechanical models for walking
- Mechanical efficiency
- Running economy – a practical investigation
  - Energy cost of running
- Potential and kinetic energy changes in walking
  - Positive and negative work
  - Force – velocity revisited for negative work
  - Internal and external work
- Impact of load carriage on running efficiency – a practical investigation
- Mechanics of running
  - Mechanical models for running
  - Wasted mechanical work in locomotion
  - Measurement of maximal muscular power during running
- Efficiency of cycling (with practical investigation)
- Economy of load carriage (with practical investigation)
- Efficiency of stepping

### **Seminar module 'Advanced Physiology'**

Lecturer: C. Christie

The Advanced Physiology module is comprised of 4 mini-modules. In any given year, 2-3 of these modules will be covered. All modules incorporate aspects of both exercise (sports science) and work (ergonomics) physiology, although a specific mini-module is devoted to sports science (clinical exercise physiology) and another module is devoted to ergonomics (applied/clinical work physiology).

This year the modules are organized as follows (although not necessarily in that order):

1. Advanced exercise physiology
2. Clinical exercise physiology
3. Physical activity, health and disease
4. Applied work physiology

Advanced exercise physiology:

- Understanding fatigue
- Pacing strategies and performance
- Thermoregulation
- High altitude physiology and training
- Sudden death in athletes
- Immune response to exercise
- Reproduction and exercise

### Clinical exercise physiology

- The conduction system and electrocardiogram (ECG); ECG: the leads and Einthoven's triangle; ECG tracing - interpretation and meaning, detecting abnormalities, preparing your patient and the exercise stress test
- Heart Disease: Globally and within South Africa, risk factors for heart disease, impact on work/exercise performance
- Lung diseases: General and during work-exposure
- General principles of training and 'tapering'
- Overload and overtraining
- Banned substances in sport

### Physical activity, health and disease

- The South African situation
- Chronic diseases of lifestyle
- Diseases of poverty
- Physical activity as treatment
- ACSM physical activity guidelines for healthy individuals
- Physical activity guidelines for diseased populations (diabetics, hypertensive patients, etc.)

### Applied/clinical work physiology

- Physical ergonomics - link to physiology
- Physically demanding work sites
- Measuring the physiological cost of work
- Current research on physiological work guidelines
- Pre-employment screening
- Work hardening
- Heat stress and work performance
- Regulation of fluid balance

## **Seminar module 'Ergonomics Risk Assessment'**

Lecturer: M. Mattison

This module focuses on the practical execution of performing work analyses and ergonomics risk assessments in industry. Emphasis is laid on practical competence and fieldtrips form an integral part of this module. Topics include:

- The role of the ergonomist within an IDC and more specifically the South African context
- The ergonomics risk assessment process
- Musculoskeletal disorders
- Process and task analyses
- Ergonomics risk screening tools
- Ergonomics interventions
- Ergonomics advocacy
- Ergonomics programmes (including training programmes)
- MSD prevention and management (medical surveillance)



### **3.6 Further study options at HKE**

Refer to section 4.1 regarding admission to further postgraduate studies at the HKE Department.

## 4 Masters and PhD in HKE

Class coordinator: A Todd (email: [a.todd@ru.ac.za](mailto:a.todd@ru.ac.za), phone: 046-603 8469)

### 4.1 Admission

#### 4.1.1 Admission for Masters Studies

The normal requirement for admission to a Master's degree at Rhodes is a four-year qualification of an acceptably high standard, i.e. usually a three-year Bachelor's degree, plus a good Honours degree in a relevant subject (taken from the Rhodes University official calendar). Minimum requirement for admission is a Bachelor Degree with Honours in Human Kinetics and Ergonomics or any other course providing the required basic knowledge.

Final admission is specific to the Department and will be based on the following criteria:

- Availability and willingness of a staff member to supervise the student (it is recommended that interested students approach HKE staff and discuss areas of interest).
- Honours module marks
- Honours research project mark (process and content)
- Demonstration of interest in the HKE Department and field of study, via tutoring, participation and/or assistance in research projects, conduct during research seminars etc. (refer to "activity profiling" in section 2.4).
- Staff consensus

#### 4.1.2 Admission for PhD Studies

In practice, most PhD candidates have a Master's degree. However, Senate may, on the recommendation of the Faculty concerned, convert the registration of a candidate for the Master's degree to registration for a PhD degree. Such conversions require the Head of Department and supervisor to be satisfied that the student's completed work is of a standard normally expected of a doctoral student, that the student is capable of completing a doctoral degree and that the project is of a level and scope expected of a PhD study.

For further information on the University's policy of Masters and PhD admissions, please consult the Rhodes University Higher Degrees Guide by visiting: <https://www.ru.ac.za/media/rhodesuniversity/content/research/documents/higherdegreesguide.pdf>.

#### **PLEASE NOTE FOR BOTH MASTERS AND PHD APPLICATIONS:**

Completion of an Honours or Master's degree does **NOT** automatically guarantee acceptance for a Masters or PhD respectively. You can approach the HoD to informally check your chances of being accepted, and she / he will collect the required information (this may take a couple of days). Final admission is however dependent on staff

consensus and is based on the criteria listed under section 4.1.1 (or selected relevant ones for PhD applications).

The application deadline for further postgraduate studies is only in April, but it is strongly recommended that you apply early in order to ensure that Departmental and staff capacities are not allocated elsewhere.

In addition, the application form for Masters and PhD requires identifying a supervisor and defining a topic (normally a brief project outline is required). If you consider a change in topic from your Honours or Masters research, you may provide a provisional topic and supervisor (with their knowledge). A precise research topic must then be refined and be made available at the end of the first term (2<sup>nd</sup> term at the very latest). This new / refined proposal will most likely have to be submitted to the Faculty for approval.

## 4.2 Expectation from Masters and PhD students

It cannot be emphasized enough that Masters or PhD studies should be regarded as **full-time work** (i.e. Mondays – Fridays from 8:00-5:00) for the full year. Vacations and time off should be discussed with the supervisor well in advance.

In accordance with the South African National Qualifications Framework, the HKE Department expects an MSc and PhD students (NQF Levels 9 & 10) to develop the following learning outcomes (*adapted from the South African Qualifications Authority – Level Descriptors for the South African National Qualifications Framework; November 2012*).

The anticipated outcomes as a Masters student are the following

- Demonstrating specialist knowledge to enable engagement with and critique of current research or practices, as well as advanced scholarship or research in a particular field (critical thinking).
- Being able to evaluate current processes of knowledge production and choose and appropriate process of enquiry for the area of study (critical thinking).
- Being able to design, select and apply appropriate methods, techniques, processes or technologies to complex practical and theoretical problems (mastering the scientific practice & time management).
- Using a wide range of specialized skills in identifying, conceptualizing, designing and implementing methods of enquiry to address complex and challenging problems and to understand the consequences of any solutions generated within an specialized context (problem-solving)
- Demonstrating the ability to make autonomous ethical decisions
- Accessing, processing and managing information
- Producing and communicating information by using academic and professional resources and defend substantial ideas that are the product of research (e.g. through journal submission, presentation at conferences or workshops).
- Being able to make interventions at an appropriate level within a system, based on an understanding of hierarchical relations within the system, and the ability to address intended and unintended consequences of interventions.
- Developing his/her own learning strategies which sustain independent learning and academic or professional development (self-reflection & life-long learning),

and can interact effectively within the learning or professional group as a means of enhancing learning (ability to transfer knowledge to others)

- Being able to take full responsibility for his/her own work (accountability, independence & self-responsibility)

The anticipated outcomes as a PhD student are the following:

- Demonstrate expertise and critical knowledge in an area at the forefront of a field or discipline and the ability to conceptualize new research initiatives and create new knowledge or practice (being a self-responsible researcher).
- Contribute to scholarly debates around theories of knowledge and processes of knowledge production, i.e. be able to challenge paradigms and theories.
- Be able to develop new methods, techniques, processes, systems or technologies in original, creative and innovative ways
- Apply specialist knowledge and theory in critically reflexive, creative and novel ways to address complex and theoretical problems (problem-solving).
- Identify, address and manage emerging ethical issues and to advance processes of ethical decision-making.
- Make independent judgments about managing incomplete or inconsistent information or data in an iterative process of analysis, synthesis.
- Produce substantial, independent, in-depth and publishable work which meets international standards, is considered to be new or innovative by peers, and makes a significant contribution to the discipline. Be able to develop a communication strategy to disseminate and defend research, strategic and policy initiative and their implementation to specialist and non-specialist audiences (e.g. through tutoring/lecturing, publication of journal articles, presentation at conferences and workshops, consultancy work).
- Understand the theoretical underpinnings in the management of complex systems to achieve systemic change, and the ability to independently design, sustain and manage change within a system.
- Demonstrate intellectual independence, research leadership and management of research and research development.
- Take full responsibility for his/her own work and lead, oversee and be held accountable for the overall governance of processes and systems.

## 4.3 Departmental Activities

### 4.3.1 Orientation Seminars

An MSc / PhD orientation seminar series will be held in the mornings of **30 and 31 January 2017**. The seminars' purpose is to discuss, with students and staff, each other's expectations of postgraduate conduct and work in the HKE Department, as well as some practical hints and tips about how to plan for postgraduate studies.

### 4.3.2 Participation in Honours Modules

Although Master's and PhD studies do not have a coursework component, postgraduate

students are welcome to participate in Honours modules of their interest. Once they have indicated their interest in partaking in selected modules, Master's and PhD students must commit to the same DP rules and regulations as the Honours students and complete all assignments and exams for that/those module(s). Candidates who pass the module requirements will receive an accreditation for that/those module(s).

#### **4.3.3 Field trips**

Field trips are arranged by the relevant lecturers as part of the Honours modules. Advanced notice of when and where these field trips will be taking place will be given to students closer to the time, as these are dependent on the relevant industry. Master's and PhD students are welcome to join these fieldtrips, provided the logistics allow it.

#### **4.3.4 Contribution and support for other departmental activities**

The HKE Department is also involved in various "expert services", such as community engagement, high performance testing, ergonomics consultancies, training courses and office ergonomics. Interested students are welcome to become involved in these activities.

### **4.4 Degree structure**

The following information has been taken from the Rhodes University Higher Degrees Guide. For more detailed information please refer to this guide which can be found at: <https://www.ru.ac.za/media/rhodesuniversity/content/research/documents/higherdeeguide.pdf>

#### **4.4.1 Research Proposals**

Candidates registered with the Faculty of Humanities are required to submit research proposals within three to six months of registration for consideration by the relevant Faculty Higher Degrees Committee which recommends acceptance or otherwise to the relevant Faculty Board. Guidelines for the structure of a research proposal can be found in the RU Higher Degrees Guide.

Candidates registering for a Master's or PhD degree in the Faculties of Science should consult the faculty with regards to specific requirements for the research proposal.

#### **4.4.2 Duration of a Master's Degree**

Normally, a Master's degree in HKE takes two years complete (full-time). If a candidate has not completed a Master's degree within three years from first registration, the registration will be cancelled unless the Senate is approves an extension.

#### **4.4.3 Duration of a PhD degree**

The minimum period for which a candidate may be registered for the PhD degree is three years if the candidate holds an Honours degree, or two years if the candidate holds a Master's degree.

If a candidate has not completed a PhD within five years from first registration (whether the degree is being taken full or part-time, and whether in attendance or not), the registration will be cancelled unless the Senate is satisfied that an extension is warranted.

#### 4.4.4 (Re)Registration

All higher degree candidates are required to re-register each year until the completion of the degree. Failure to re-register before 15 February in a given year will result in the cancellation of registration and the candidate may be required to reapply for admission.

## 4.5 Supervision

Senate appoints at least one, and occasionally more than one supervisor, for each higher degree candidate. If more than one supervisor is appointed, one of the supervisors will be designated as the principal supervisor.

Students' and supervisors' expectations and understandings of what constitutes supervision are often very different and the one-on-one relationship of student to supervisor can compound such difficulties. The Rhodes University Higher Degrees Guide lists the responsibilities of supervisors and students. For a complete list of responsibilities, please consult the Higher Degrees Guide which can be accessed on <https://www.ru.ac.za/media/rhodesuniversity/content/research/documents/higherdeeguide.pdf>.

## 4.6 Examination

### 4.6.1 Criteria for the award of a higher degree by thesis

Senate has set the following guidelines for the award of higher degrees by thesis (taken from the RU Higher Degrees Guide)

#### **Masters**

A thesis for **the degree of Master** must show that the candidate:

- (a) is sufficiently acquainted with the appropriate methods and techniques of research;
- (b) is sufficiently acquainted with the relevant literature;
- (c) has both satisfactorily understood the nature of the problem or topic and assessed the significance of the findings;
- (d) has satisfactorily presented the results of independent research for the award of the degree in a manner which is satisfactory as to literary style and presentation, and free from grammatical and typographical errors.

When the award of the degree *with distinction* is under consideration, examiners are asked to look for evidence of real methodological and conceptual skills, clarity of exposition and development of argument, sound judgement, originality of approach, and some contribution to knowledge, and require that the thesis should reflect literary skills appropriate to the subject.

## **PhD**

A thesis for the degree of **Doctor of Philosophy** must show that the candidate:

- (a) is sufficiently acquainted with the appropriate methods of research;
- (b) is sufficiently acquainted with the relevant literature;
- (c) has satisfactorily presented the results of independent research for the award of the degree;
- (d) has made a substantial and original contribution to knowledge in the discipline, the substance of which is worthy of publication in a scholarly journal or book. (A Doctoral thesis differs from a Master's thesis particularly in respect to this point). In addition, the thesis must be satisfactory as to literary style and presentation. A PhD thesis cannot be merely a collection of published papers, nor may such published papers be included as annexures or inserts.

### **Submission of the thesis**

It is the responsibility of candidates to decide when they are ready to submit their theses (subject, of course, to the rule concerning the period of registration). In general, a candidate will be expected to submit the thesis only when their supervisor agrees to its submission, but the University will not insist on the approval of the supervisor before accepting submission of the thesis. It must be noted, however, that a thesis may be submitted for examination only once, though in certain circumstances the examiners may invite a candidate to revise and re-submit the thesis.

### **Intention to Submit**

A thesis may be submitted at any time during the year, but candidates must indicate their intention to submit a thesis by writing to the Registrar at least two months prior to submission for Masters and for Doctoral theses.

Candidates who intend to submit a thesis for examination for consideration of the award of the degree at an April graduation ceremony must submit their thesis to the Registrar not later than **15 December**. If a candidate cannot meet the annual deadline for submission, the University may be unable to have the examination completed in time for the next set of graduation ceremonies, which normally takes place in April each year. New rulings also dictate that thesis corrections have to be effected **before** the graduation ceremony, in order for the candidate to be allowed to graduate.

Candidates will be supplied with a "Supervisors statement" form, an examination entry form, a declaration form and a thesis electronic access approval form which should accompany the thesis when it is submitted.

### **Declaration of Originality**

A thesis must be accompanied by a declaration on the part of the candidate as to the extent to which it represents their own work. Candidates are also required to submit a statement certifying that the thesis has not been submitted for a degree at any other university. A standard form for this purpose will be issued when candidates inform the Registrar that a thesis is to be submitted for examination. This form should be completed and returned when the thesis is submitted for examination. It should not be bound into the thesis itself.

### **Number of copies**

The number of copies required by the University for examination depends on the number of examiners appointed. For Master's theses at least two examiners are appointed and Senate requires that at least three examiners be appointed for a PhD.

The Registrar's Division will advise the candidate of the number of copies required. These copies should be suitably bound. Ring binding is the norm. If the supervisor is satisfied with receiving an electronic version of the first submission, the students may then submit only 2 copies for examination (Master's), unless there are three examiners.

Upon completion of the examination procedure (once the examination results have been received), an electronic copy on CD, prepared in Adobe Acrobat Portable Document Format (PDF), as well as a printed copy of your title page is required to be handed in at Registrar Division. Submission of the Thesis final submission form, to be signed by the degree candidate and the respective supervisor(s), is also required. These copies should only be produced once all corrections have been made and approved by the Faculty Board or the COA.

One leather-bound copy is required for the supervisor(s) OR an electronic copy. This should be discussed and decided on between supervisor(s) and student. These copies should be hard-bound in navy blue leather. Lettering for both the cover and the spine is in gold-leaf – 5mm.

**Cover:** Title (shortened if necessary, but as approved by HOD). Title appears on the cover only, below which the author's first and surname(s) appear. (Second names can appear in full, or in initials).

**Spine:** Degree – Space - Author's names (one Christian name only plus initials, followed by surname) – Space – **Year of submission (i.e. the year of the candidate's graduation).**

#### **4.6.2 Examination Process**

Attempts are made to complete the examination process in as short a time as possible and in time for the next set of graduation ceremonies. However, the primary consideration is an entirely fair yet comprehensive examination of the thesis, with emphasis on the maintenance of high standards. The University is also unable to guarantee that the examiners will submit their reports by the recommended date.

The Registrar will contact candidates immediately of the outcome of the examination process is known and it must be stressed that the University does not undertake to reach a decision on the award of a degree by any specific date. Interference in the examination process in any way could invalidate the entire examination and the award of the degree. Not even the nomination of examiners will be discussed with, or disclosed to candidates. Only when a decision has been made about the award of the degree, will the names of the examiners be made known to candidates, and then only if the outcome is a positive one and provided the examiners have given their consent. Similarly, after a decision has been made, all or part of an examiners report may be made known to candidates only if the examiner agrees to this.



### **Examination Process for Masters**

TWO examiners, external to the University, are appointed by the Faculty Board for each candidate. Normally, at least one of the examiners should be a member of academic or research staff at a University or recognized research institute and, preferably and where appropriate, at least one should be from outside South Africa or have demonstrated an international research standing.

The nomination of examiners may NOT be discussed with or disclosed to the candidate.

The recommendations open to examiners include:

- (a) Acceptance of the thesis and award of the degree, with or without distinction.
- (b) Acceptance of the thesis once minor corrections and/or revisions have been made (to the satisfaction of the supervisor or the Head of Department).
- (c) Requirement of clearly specified major revisions to the thesis and reexamination of the revised thesis.
- (d) Rejection of the thesis.

In addition, examiners will be asked for a formal report on the thesis which should be sufficiently detailed to allow the Dean to reach an informed judgement.

Normally the Head of Department (or, where the HoD is directly involved a supervisor and/or examiner, the Dean) will collate the examiners' reports and make a formal recommendation to the Dean or Deputy Dean of the Faculty on the result of the examination. The Registrar shall advise the examiners of the outcome and, where the Vice-Chancellor decides this should be done, the reasons for the decision.

If there is unanimity amongst the examiners and no reason to refer the thesis back to the candidate for revision, the Dean (or Deputy Dean) of the Faculty may accept the recommendations and approve the award of the degree, with or without distinction, on behalf of the Faculty Board.

The thesis may also be returned to the candidate for minor or major revisions. In the latter case the thesis may have to be re-submitted for examination.

### **Examination Process for PhD Theses**

The Registrar will call for the nomination of at least THREE examiners, external to the University. In all cases the most appropriate examiners should be chosen, and with particular care when the thesis is multidisciplinary, or has some local applicability. Normally two of the examiners should be members of academic or research staff at a University or recognised research institute and, preferably and where appropriate, at least two should be from outside South Africa or have demonstrated an international research standing.

The nomination of examiners should not be discussed with or disclosed to the candidate.

Examiners will be asked for a recommendation on the thesis by indicating one of the following:

- (a) that the candidate be awarded the degree and no corrections need be made to the thesis;
- (b) that the candidate should be awarded the degree after minor corrections and/or specified changes have been made to the satisfaction of the supervisor and/or

Head of Department;

- (c) although the thesis does not meet the required standard, the candidate should be invited to do further work if necessary, revise and resubmit the thesis for reexamination by the examiners;
- (d) the degree should **not** be awarded to the candidate.

In addition, examiners will be asked for a formal report on the thesis which is sent to the Committee of Assessors (COA).

When all the examiners' reports have been received, the Registrar will collate and send them to the relevant Dean or Dean's nominee who shall summarize these and forward the reports and summary to the COA for their recommendation.

The COA should report to the Registrar and Vice-Chancellor within two weeks of receipt of the examiners' reports. The report must list one of the following recommendations:

- (a) the degree be awarded;
- (b) the degree be awarded but that minor corrections be made to the thesis. Those corrections should not delay the award of the degree;
- (c) the candidate should be awarded the degree subject to completing any specified changes to the thesis, to the satisfaction of the relevant supervisor and/or Head of Department with the final approval by the Chair of the COA;
- (d) although the thesis does not meet the required standard, the candidate should be invited to do further work if necessary, revise and resubmit for re-examination by the examiners; (it must be pointed out to the candidate that this may be done only once);
- (e) the degree should **not** be awarded to the candidate.

The report, together with the examiners' reports must be submitted by the Registrar to the Vice-Chancellor for approval on behalf of Senate or put to a meeting of Senate for its consideration.

The thesis may also be returned to the candidate for minor or major revisions. In the latter case the thesis may have to be re-submitted for examination.

## 5 Publications

The University encourages the publication of work done for higher degrees (for both Master's and PhD with the supervisor as joint author, where appropriate). There is little point in doing non-classified research unless the findings of the research are communicated to other workers in the field for their information and assessment. Every attempt should thus be made to publish as much of the thesis material as possible.

Some theses may be suitable for publication in full as books. More often, papers will have to be prepared from suitably edited sections of the thesis. Where papers are submitted for publication in journals, every attempt should be made to have the papers published in recognized and accredited journals. These are journals which are recognized by the Government's Department of Education for subsidy purposes. They nearly always use peer review as the criterion for publication. A list of these journals may be obtained from the Research Office.

### 5.1 Publishing thesis content

It is accepted for postgraduate students to publish (parts of) their research during the time of their studies, i.e. before the examination process. These publications, if written with co-authors should however be reflected in the thesis' reference list.

### 5.2 Authorship

For submitting abstracts for international and local conferences and / or journals use the following as guidelines on authorship:

Firstly, if an abstract/paper is written by a student on his/her research (honours, MSc, PhD), then he/she is the first author. However, if someone else writes the abstract/paper then the person who writes the majority of the paper is first author, even if it is a student project (e.g. it could be the supervisor). If a student writes the abstract/paper on his/her research project, the supervisor should be a co-author as he/she has made a contribution to the research and/or the abstract/paper (this includes work such as conceptualization, methodological ideas, reviewing/editing, etc.). Then there may be other authors too if projects/papers are joined. In cases of doubt consult one of the academic staff.

All co-authors need to approve a paper before it is submitted.

## 6 Further book suggestions for HKE

	HKE I	HKE II	HKE III	Hons	MSc
American College of Sports Medicine (1995). <i>Guidelines for Exercise Testing and Exercise Prescription</i> (5th ed. or latest edition). Philadelphia: Lea & Febiger. (ISBN 0-8121-0524-9).			X	X	X
Bridger, R.S. (2008). <i>Introduction to Ergonomics</i> (3rd ed. or earlier). London: Taylor & Francis. (ISBN 978-0849373060).		X	X	X	X
Baumgartner & Jackson (2014). <i>Measurement for evaluation in physical education and exercise science</i> (7 <sup>th</sup> or earlier edition). Boston: McGraw-Hill. (ISBN 978-0321935168)	X	X	X	X	X
Currell, G., & Dowman, A. (2009). <i>Essential Mathematics and Statistics for Science</i> (2nd ed. latest edition). Chichester: Wiley-Blackwell. (ISBN 978-0470694480).	X	X	X	X	X
Haslegrave, C.M., Chaffin, D.B., & Delleman, N.J. (2004). <i>Working Postures and Movements: Tools for Evaluation and Engineering</i> . Boca Raton: CRC Press. (ISBN: 978-0415279086)		X	X	X	
Helander, M. (2006). <i>A Guide to Human Factors and Ergonomics</i> (2nd ed.). Boca Raton: CRC Press. (ISBN: 978-0415282482)		X	X	X	X
Noakes, T. (2002). <i>Lore of Running</i> . (4th ed. or earlier). Cape Town: Oxford University Press Southern Africa.			X	X	X
Oatis, C.A. (2008). <i>Kinesiology – The Mechanics and Pathomechanics of Human Movement</i> (2nd ed.). Lippincott Williams and Wilkins. (ISBN: 978-0781774222).	X	X	X		
Pheasant, S., & Haslegrave, C.M. (2006). <i>Bodyspace</i> . 3 <sup>rd</sup> edition. London: Taylor and Francis. (ISBN: 978-0415285209).		X			
Sanders, M.S., & McCormick, E.J. (1993). <i>Human Factors in Engineering and Design</i> (7th ed.). New York: McGraw-Hill. (ISBN: 978-0070549012).			X	X	
Schmidt, R.A., & Wrisberg, C.A. (2000). <i>Motor learning and performance</i> . (2 <sup>nd</sup> edition or later). Xhampaign: Human Kinetics. (ISBN: 0880115009)			X		
Stanton, N., Hedge, A., Brookhuis, K., Salas, E., & Hendrick, H. (2005). <i>Handbook of Human Factors and Ergonomics Methods</i> . Boca Raton: CRC Press. (ISBN: 978-0415287005).			X	X	X
Wilson, J.R. and Corlett, E.N. (1995). <i>Evaluation of Human Work: A practical ergonomics methodology</i> (2nd ed.). London: Taylor and Francis. (ISBN: 978-0748400843).			X	X	X

## 7 Format Guide

**Prefaces:** This format guide describes some general formal rules of scientific writing and is in this form sufficient for undergraduate laboratory or project reports etc. Postgraduate students are requested to consider additionally the extended (postgraduate) format guide.

Different disciplines may use slightly different formal rules, e.g. for referencing. So do not be surprised if you find minor differences between this guide and other papers. However, this guide is to be considered as standard for any HKE documentation.

### 7.1 Style of writing

The main purpose of writing a report is to communicate clearly and simply what you have done, why you have done it, and what the results mean.

Writing style is very important. Think before you write and group related ideas together in a logical sequence. A “nice to read” type of writing style is, although beneficial, secondary to clear and logic writing. Use the third person singular, past tense in such writing.

Clearly distinguish between logic and facts, information of other sources (e.g. literature) and your own point of view. All those types of information are allowed and welcome if they help to answer a research question, but the reader must be made aware which type of information you are dealing with. The most frequent mistake of this type is to postulate an own opinion in a style that it appears as a fact to the reader. Do not write "The hot weather was fatiguing the subjects" if this is just your thinking and you do not have any evidence for this statement. Better write "It cannot be excluded that the hot weather had an additional impact to the subjects" if you want to point the reader's attention to the hot temperatures.

Write the report as if it is to be read by an intelligent and very sceptical peer. Do not make unsupported assertions. Don't hide behind jargon - if you use a technical term new to you include a brief explanation.

Please also note that the term “subject” is becoming outdated and the word “participants” is generally the more desirable one to use, as it indicates willing involvement in the project.

The ten Commandments of Good Writing (according to Howard G. Knuttgen):

- Each pronoun should agree with their antecedent.
- Just between you and I, case is important.
- A preposition is a poor word to end a sentence with.
- Verbs has to agree with their subjects.
- Don't use no double negatives.
- A writer mustn't shift the readers point of view
- When dangling, don't use participles.
- Join clauses good, like a conjunction should.

- Don't write a run-on sentence because it is difficult when you got to punctuate it so it makes sense when the reader reads what you wrote.
- About sentence fragments.

Also consider the following:

- And don't start a sentence with a conjunction
- Always avoid annoying alliteration
- Be more or less specific
- Paranthetical remarks (however relevant) are (usually) unnecessary
- Do not be redundant; do not use more words than necessary; it's highly superfluous
- One should never generalize
- Eschew ampersands & abbreviations, etc.
- One word sentences? Eliminate!
- Eliminate commas, that are, not necessary. Paranthetical words however should be enclosed in commas.
- Never use a big word when a diminutive word would suffice
- Use the apostrophe in it's proper place and omit it when its not needed.
- Cut the hyperbole; not one writer in a million can use it correctly.
- Who needs rhetorical questions?
- Exaggeration is a million times worse than understatement.
- Proofread carefully to see if you any words out.

## 7.2 Structure of scientific papers and assignments

Scientific papers and assignments take many forms. They can be short or long, empirical (data are gathered) or literature research, and they can be structured or non-structured. The following will help you prepare your research project / thesis report to suit these various formats. Please note that although this is the preferred way of structuring a research project, there are instances where another format may be more suitable. The supervisor should approve of any modifications to the standard format.

### a) *Structured Assignments*

These are assignments in which specific questions are asked or specific requirements are to be met. The easiest way to deal with this is sequentially, with a clear labelling of your responses to the questions or requirements. The report should have a Title Page (see section 7.3.2), and should you employ references, use the prescribed format (see section 7.3.10). In summary, the structure of the assignments will dictate the format of the report.

### b) *Unstructured Assignments and Project Reports*

These are assignments for which there is no specific structure, as it is also the case for any type of reports. Where the structure is not completely specified use one of the following formats.

### 7.2.1 Literature Research

Both short and long literature research projects should be presented in sections appropriate to the topic. These sections might progress from the specific towards the general, or they might simply be representative of the various aspects of the topic. Regardless what the content is, the ideas should combine and flow logically to present a complete picture of the topic. The report should have a Title Page (see section 7.3.2) and all references should follow the prescribed format (see section 7.3.10).

Long literature research projects should also have an Abstract then a Table of Contents following the Title Page. The Abstract is a very short (~200 words) summary of the research.

### 7.2.2 Long Reports of Empirical Data Collection

Due to the large diversity of research projects conducted in the HKE Department, it may not be suitable to follow the same format for each project. As a guideline, reports of major projects which involve data collection should contain the following information in this order, but this is dependent on the type of project, and is up to the discretion of the student and his / her supervisor.

#### Title Page

Short and to the point (see page 45 for example format)

#### Abstract

A very short (maximum 200 words / 1 page) summary of the research. Briefly, eliminating all redundant words, inform the reader of why, how and with what method you undertook the research. The significance of the results and your conclusions should also be stated.

#### Preface or Acknowledgements

Optional.

#### Table of Contents

Contains the headings of divisions of the thesis and the page numbers where they begin.

#### List of Tables

Separate page, following the Table of Contents

Contains the exact title of each table and the page on which it appears

Each table should have a caption at the **top** (Arabic or Roman numerals as long as numbering is applied consistently) that tells concisely just what it contains.

Where tables appear they are numbered sequentially through the text, using Roman numerals ahead of the caption

All textual references to specific tables must be caps. Thus: "It is clear from Table

XVII that ...” This rule applies to textual references to the figures as well.

All tables need to be referred to in the main text.

### List of Figures

Contains the exact title of each figure and the page on which it appears.

Each figure should have a caption at the **bottom** (Arabic or Roman numerals) that concisely describes the figure.

Where figures appear they are numbered sequentially through the text, using Arabic numerals.

While liberal use of illustrative material (e.g. photographs) is encouraged, candidates are warned that “show and tell” pictures must do more than just pad the thesis. Each must add substantially to the reader’s understanding of the test ambience; orientation of equipment used; characteristics of the subjects. Please note that pasted photographs or hand-drawn figures are generally not acceptable.

PC-generated colour graphics are optional if they enhance the presentation. All graphs and charts should also be clear and intelligible in black and white, since it is in this form that they would appear in most journals.

All figures have to be referred to in text.

### Chapter I - Introduction

The introductory section gives the background to the study performed and details the reasoning leading up to the research hypothesis. This chapter consists of two subparts:

- a) Background and statement of the problem, research question or general hypothesis

Please note that depending on the type of research project, the hypothesis can either be either the statistical hypothesis or the research hypothesis, depending on what is more appropriate for understanding.

- b) Brief overview about the study performed to give the reader an idea what will be focused before getting into details in the following chapters. This part contains:

- Research hypothesis (if suitable, depending on the project) preferably as a "null" hypothesis of what you expect to happen (in the present tense).

Scope of the study (delimitations) – also depends on the project, as it may also suitable in the method or discussion

- Uncontrolled variables which may limit the applicability of the findings (limitations) – again this may also be described elsewhere

Hypothesis:

Often hypothesis repeat themselves with different parameters. Instead of filling pages with repeating the same basic hypothesis just with different parameters, you may use the following terms from the theory of sets:

$$H_0: \mu_{B1} = \mu_{B2} \quad \text{where } B = \{\text{speed, accuracy, response delay}\}$$



This aggregation should however only be used for variable that are part of a bigger set, e.g. different performance parameters or different parameters of Heart Rate Variability.

## Chapter II - Review of Related Literature

A detailed, logically sequenced discussion of specific issues both directly and indirectly related to your topic, based on a thorough review of relevant literature.

Do not start with a sub-heading titled "Introduction". Also, do not repeat your first chapter again; merely include a brief paragraph that points the reader towards what can be expected in this chapter (known as "signposting").

Please note at the outset that what is required in Chapter II is NOT a review of literature. This may sound paradoxical in view of the common title of Chapter II in postgraduate theses. But think about it: the idea behind the research Project is to demonstrate **creative** research. There is nothing (or very little) creative about copying a summary of what others have had to say. What is required is not a review of literature, so much as a **critical review** of the literature. This does not mean gainsaying everything that other researchers gave had to say. It does, however, mean **evaluating** what other researchers have had to say. Your evaluation requires, as a first step, reviewing the literature: but as a second, more sophisticated step you should produce an **appraisal of the state of knowledge** in the particular area reviewed, and not just a neutral review (copy) of what has been said.

A second warning is important if you aspire to act on the basis of your theoretical knowledge. Do not all into the trap of believing that lengthy corroboration establishes truth. All that you show by citing 100 authors who have corroborated a particular theory is that a particular theory has not collapsed under repeated testing. This **may** be a good reason to go along with the theory; but it is **not** evidence of truth. Citing strings of corroborating authors shows you have done an extensive library search: it does not demonstrate that you have critically evaluated what you have been reading.

- The format for referencing appears on page 48.
- Secondary sources are undesirable and must thus be avoided or, at least, be kept to a minimum.
- Quotations of 3 lines or less do not require changes in layout and do not include page number(s) indicating the source. These are enclosed in quotation mark and cited as one would any other text reference. ONLY in the case of long quoted passages is it necessary to indicate, after the quote (which should be single spaced and indented), the source and the page numbers. A review is not critical if it is no more than a selection of long passages lifted from the works of others. Inclusion of long quoted passages is permitted only in exceptional circumstances.

- Where exactly the same author(s) [in the same order] have produced more than one paper per year, you must number these as in the following example:
- Smith *et al.*, (1986a, 1986b, 1986c) and in references list them:  
Smith ... 1986a  
Smith ... 1986b  
Smith ... 1986c
- Citing from the web requires a re-think of your role as a researcher. Why do you think scholarly journals have editorial boards and insist that all submissions be peer-reviewed? What guarantee is there that the “information” you have gleaned on the WWW has been critically appraised and endorsed by leaders in the field? If such guarantees are not in place then the propositions involved have no more relevance in a scholarly context than do the claims of TV adverts.

### Chapter III - Methods

In this section describe your project in sufficient detail to allow someone else to repeat it. Include:

- a) Research hypothesis (if not already included in Chapter I) and statistical hypothesis / hypotheses
- b) Experimental design (control and special conditions)
- c) Scope of the study (delimitations) – if not already discussed elsewhere
- d) Uncontrolled variables which may limit the applicability of the findings (limitations) – if not already discussed elsewhere
- e) Number and participant characteristics (note: these characteristics describe experiment-relevant conditions, not experimental results. They are “category” IDVs, not experimentally-manipulated responses. Clearly, if you are experimentally changing the % fat content of a sample, the pre-existing % fat data are characteristics, while the altered % fat levels are responses)
- f) Procedures, instrumentation and independent variables
- g) Measurement of dependent and independent variables
- h) Statistical treatment(s) to be used

You are reminded that this is **your** thesis: even in the methods chapter, where you are most likely to be applying well-established methods derived by others, you should strive to “individualize” your presentation. If you used an anthropometric scale, a picture of it in Chapter III would probably be trivial, since scales of this sort are a commonplace. Wherever possible, relegate mundane method-related material (other than methods you have personally developed) to the appendices.

### Chapter IV - Results

Summarise your results using, as appropriate: graphs, figures, tabulations, etc. of means and standard deviations for each experimental condition (see section 7.3 for formal rules). If non-parametric statistics (which consider medians, not means) are used, medians should be included in the tables. Where different classes of variable appear in a table, standard deviations cannot be compared, so include the C.V.

Briefly describe (but not discuss) your results.

Include verification / rejection of hypotheses

### Chapter V - Discussion

Relate your results to the literature:

- Do they support or contradict the literature? Why?
- Comment on reasons for unexpected results
- Speculate on theoretical or practical implications of your results.

This section may also include the limitations and delimitations of the study

Support **ALL** statements made in discussion of results by reference to the published literature.

Describing your findings is a means, **NOT** an end: you have barely begun when you experimental findings are carefully elucidated. What follows is the intellectual hub of the whole thesis – what do these findings **mean**? To what extent do they confirm, modify or refute existing doctrine? To what extent do the various facts of your multi-disciplinary investigation interrelate? **These** are the meaningful questions your thesis should address – **these** are the measure of your scholarship.

### Chapter VI - Conclusions and Recommendations

Draw specific conclusions based on your results. Ensure that these conclusions are based on your data.

Provide recommendations for further study based on your findings.

So often these are summarily dismissed. But for the very senior candidate this raises the question why put yourself through all this toil, for so meagre an outcome? Surely to merit the appellation Doctor of Philosophy, you should have a great deal to say on the basis of your results, and a great deal to recommend to those interested in this area. Candidates for less senior degrees should, likewise, aspire to making reasonably profound propositional statements that could not have been made prior to conducting the study.

### References

Refer to section 7.3.10 for details

### Appendices

Refer to section 7.3.11 for details

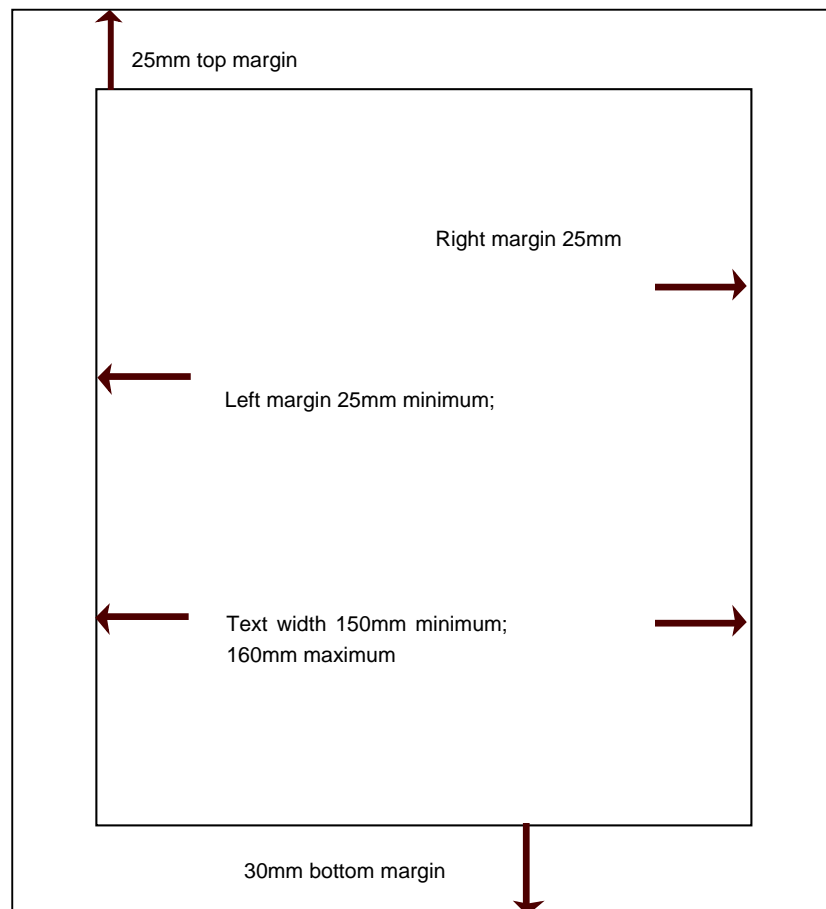
### 7.3 General formats

For any long empirical report / assignment, please use the following HKE format. An MS-Word template can be copied from the departmental Office Administrator or from the HKE website.

#### 7.3.1 Page format

Leave:

- 25 mm top margin,
- 25-35 mm left margin (depending on how much space is required for binding),
- 25 mm right margin and
- 30 mm bottom margin (page number centred)



### 7.3.2 Title Page

<p>[TITLE OF PAPER]</p> <p>BY</p> <p>[AUTHORS NAME]</p> <p>PROJECT / THESIS / DISSERTATION [print only the appropriate type]</p> <p>Submitted in [partial] fulfilment of the requirements for the [Course Honours in Human Kinetics and Ergonomics] or [Degree Master of Science]</p> <p>[Name of course or Degree]</p> <p>Department of Human Kinetics and Ergonomics Rhodes University, 2017 Grahamstown, South Africa</p>
--

Figure 1: Title page layout (text in squared brackets: fill in the appropriate information).

### 7.3.3 Text format

Use ARIAL font 12pt size and a line spacing of 1.5 as standard.

### 7.3.4 Pagination

Every page following the title page in a thesis is assigned a number which appears, centred, at the foot of the page.

- All pages preceding Chapter I are numbered in small Roman numerals
- The first page of Chapter I is page 1 and Arabic numerals continue throughout the remainder of the thesis

### 7.3.5 Quotations

Format for quotations taking more than two or three lines or involving more than one sentence:

Indent both sides. Single-space. Omit inverted commas. At the end of the quoted passage, state author(s); date; p (or pp) numbers(s).

If the quotation is only one sentence and takes up less than 3 lines: don't indent; don't single-space; place quotation in inverted commas; cite author(s) in the normal way, without indicating page number(s).

### 7.3.6 Unacceptable abbreviations; symbols

You may not start a sentence with an abbreviation or with arabic numerals. Don't use: *Ibid*; *Idem*; *Op cit*; *Loc cit*. (Reason: the modern scientific journals, in ours and related disciplines, avoid this usage).

When you say: "McMaster *et.als*' (1991) study ..." you're advertising several facts; that you don't know how to use abbreviations and that you don't read much, are two of the more obvious.

### 7.3.7 Line breaks

Units of measurement must, along with the numbers involved, be self-contained within a line; do not allow line-breaks to split, as in the examples below:

..... 50  
kg.min<sup>-1</sup>

..... 50 kg.min  
-1.

..... 50 kg.  
min<sup>-1</sup>.

### 7.3.8 Text headings and sub-headings

At the outset decide on a format for headings, sub-headings etc. and apply it consistently. The Department, perhaps injudiciously, has not imposed a format on thesis writers, because it is felt that this might impact negatively on the flow of each individual's means of expression. Some for example, find that numbering (with decimals indicating sub- and sub-sub-headings) facilitates systematic presentation: others find this method stultifying. Candidates are advised to take their lead from the literature and to apply their chosen scheme systematically.

However, if a numbering system is used it may not go beyond the use of two sub-headings *e.g.*:

Heading = 1  
Sub-heading = 1.1  
Sub-sub-heading = 1.1.1; 1.1.2; 1.1.3; ..... *etc.*

Headings may not be underlined. They must appear in **bold type**.

### 7.3.9 Figures, tables and equations

The layout of tables and figures in the project / thesis must be compatible with the examples depicted on the following pages.

Tables are to be constructed as in the examples on the next two pages. Note carefully that “fancy artwork” is not permitted in the grid outline format. Use solid vertical and horizontal grids, avoiding excessively wide bold grid-lines.

Also carefully consider the use of colour – a very obvious contrast in colour may not be so when printed in black and white.

All figures and tables have to be referred to in the main text.

Each **figure** should have a numbered caption at the bottom that concisely describes the figure.

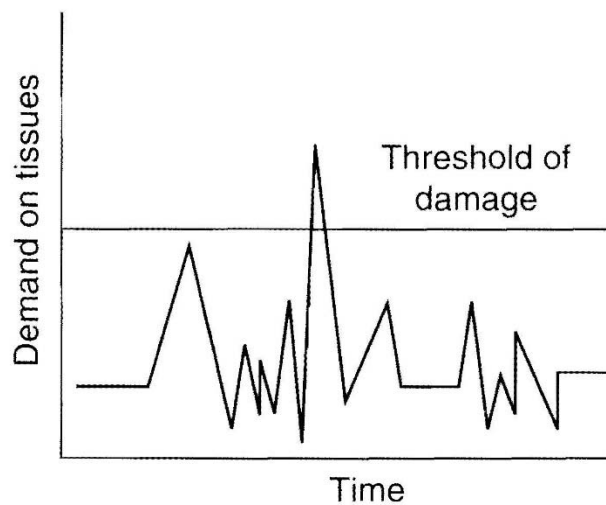


Figure 2: Load-tolerance relationship (taken from Bridger, 2009, p.57).

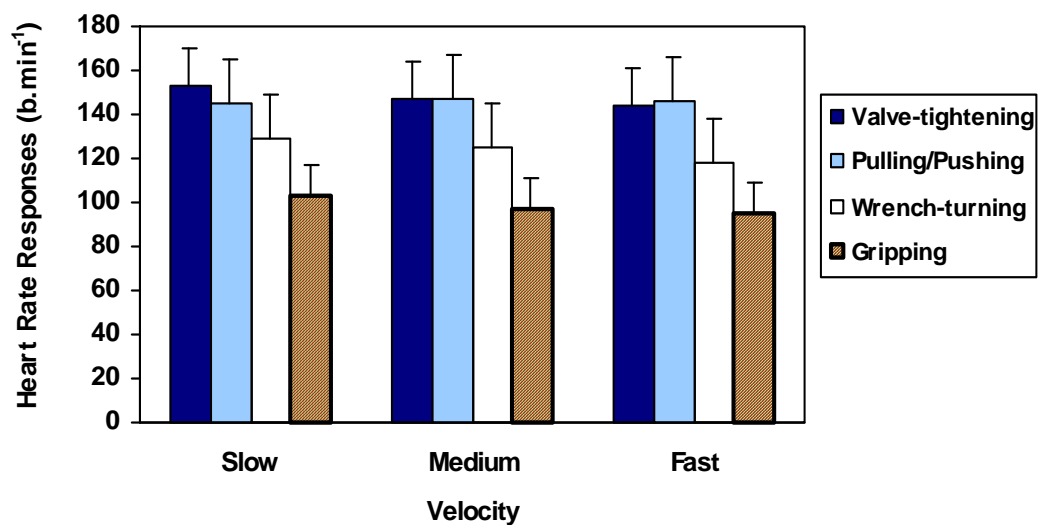


Figure 3: Mean heart rate responses.

Each **table** should have a numbered caption at the top that tells concisely just what it contains. As an option, arabic or roman numbers might be used for tables (but have to be applied consistently throughout the paper).

Table IV: Laboratory Test (LT) responses at Slow Isokinetic Speed ( $30^{\circ}\cdot\text{s}^{-1}$ ): comparisons across joints tested. Means ( $\pm$  SD). \*

Joint	Motion	Peak Torque (Nm·kg <sup>-1</sup> )	Total Work (J·kg <sup>-1</sup> )	Average Power (W·kg <sup>-1</sup> )
Trunk	Extension	3.82 ( $\pm$ 0.78)	4.77 ( $\pm$ 0.82)	1.22 ( $\pm$ 0.26)
	Flexion	3.26 ( $\pm$ 0.46)	4.63 ( $\pm$ 0.49)	1.19 ( $\pm$ 0.16)
Hip	Extension	3.23 ( $\pm$ 0.78)	3.94 ( $\pm$ 1.01)	1.11 ( $\pm$ 0.28)
	Flexion	1.93 ( $\pm$ 0.36)	2.00 ( $\pm$ 0.34)	0.56 ( $\pm$ 0.11)
Knee	Extension	3.34 ( $\pm$ 0.48)	3.11 ( $\pm$ 0.49)	0.90 ( $\pm$ 0.17)
	Flexion	2.09 ( $\pm$ 0.35)	2.39 ( $\pm$ 0.43)	0.72 ( $\pm$ 0.15)

\* None of these tests involved gravity-correction

**Equations** are numbered in parenthesis right to the equation and referenced accordingly. Equations do not have a caption or heading.

Example:

$$A + B = C \quad (\text{eq. 1})$$

Graphs and figures from external sources:

Graphs, figures or whatever may be copied from external sources in its original form if they are correctly referenced. No redrawing or so for the sake of changing the outfit only is required (this is more and more considered as plagiarism if the content is not changed). For reports and theses no permission form authors is required as well. However, publications in journal and books will often require permission of the copyright owners.

### 7.3.10 Referencing

\* Please note that the HKE Department complies with the APA standard of referencing.

More information can be found on <http://www.APA.org>.

#### General rules

- ALL references used must be included in the report / documentation.
- References must be listed in ALPHABETICAL ORDER in the reference list.
- Do NOT number the references.

#### In-text Referencing

Nothing is more boring than an apparently endless stream of:

"Smith (1967) says .... and Brown (1993) **agrees** .... while Jones (1995)



**disputes** the theory that..." etc.

Try to vary the manner in which authors are cited in the body of your text. **One** useful way to get the readers' focus on **what** has been said, rather than on **who** said it, is to make the statement and follow it with the author(s) to whom it is attributed, in brackets.

**Table 5:** Examples of reference citations in the text

Direct quote	(Bradley, 1998, p. 276) or Bradley (1998, p. 276)
Paraphrasing with one author	(Bradley, 1998)
Paraphrasing with two authors	(Bradley and Calhoun, 1998)
Paraphrasing with more than two authors	(Bradley <i>et al.</i> , 1998)

For citing more than two authors use the abbreviation *et al.* For example: Smith, James, Jones and Brown would be shortened in text to Smith *et al.* (2000). Note that *et al.*, must only one full stop (after "al.") and be in italics (not bold).

When referencing more than one source in-text, the sequence of authors is listed in chronological order (i.e. in ascending order of their dates), or in order of importance. If two sources with the same date are referenced then these sources are listed in alphabetical order.

Some examples:

"It has been identified (De Vries, 1980 ) that ..."

"Astrand and Rodahl (1977) point out that ..."

"One experiment (Gordon *et al.*, 1983) ....."

"Several authors (Marras *et al.*, 1995; Wilson and Corlett, 1995; Salvendy, 2006) argue that ....."

#### Listing primary sources

Generally, list all authors and mark book names and journal titles italics (or bold). In the following, examples of different sources are outlined.

Books:

Spencer, R.F., & Johnson, G.T. (1999). *Applied Physiology* (2nd ed.). Cape Town: Harper and Collins Publishers.

Chapters in edited volumes:

Spencer, R.F., & Johnson, G.T. (1997). The basic principles of Applied Physiology. In T. Cohen, & R. Godman (Eds), *Early studies into work physiology* (pp. 120-125). New York: Harper and Row Publishers.

Journal Articles:

Cann, R.L., & Brown, W. (1991). Acceleration and speed as factors in human performance. *American Journal of Sports Medicine*, 21(1), 120-125.

Brage, S., Ekelund, U., Brage, N., Hennings, M.A., Froberg, K., Franks, P.W., &

Wareham, N.J. (2007). Hierarchy of individual calibration levels for heart rate and accelerometry to measure physical activity. *Journal of Applied Physiology*, 103, 682-692.

Conference proceedings:

Scott, P.A., & Charteris, J. (1995). Lifting in South African Industry. *Proceedings: Joint IEA World Conference and 2<sup>nd</sup> South African Congress. Cape Town, 12-20 July 2000*, 500-520.

Theses:

Almeida, D.M. (1990). *Father's anticipation of family work*. Unpublished Master's thesis, University of Victoria, British Columbia, Canada.

World wide web:

Christie, C.J. (2001). *Case Study: Aerobic Capacity*. URL: <http://www.ru.ac.za/aerobic>. Last accessed: 17 August 2008.

### Referencing secondary sources

Secondary sources are references which were not directly consulted, but only gathered (re-cited) from primary sources. Wherever possible, go to the original reference rather than someone else's interpretation of the reference. But you are allowed to use secondary sources if you indicate this correctly; however secondary sources should be kept to an absolute minimum and used only when the original article is not available.

If you are using a secondary source in your work, you must use the following format:

Within the text you acknowledge the author/s and date of the secondary source like a primary source, e.g. "McGill (2002, as cited in Bridger, 2009) stated that .....".

In the reference list you then include only the primary source, i.e. in this example: Bridger, R.S. (2009). *Introduction to Ergonomics* (3rd edition). Boca Raton: CRC press.

### **7.3.11 Appendices**

In an appendix or appendices any material supportive should be included which would interfere with the flow of the report if contained within the body of the report, such as:

- raw data
- lists of items too lengthy to include in results
- supportive letters
- ancillary information

Each new type of material should be contained within its own appendix. Label Appendix A / Appendix B etc.

## **7.4 Statistical Terms**

Statistics use some defined terms that can cause misconceptions if not applied appropriately. Mainly the following terms must be considered for theses in the HKE domain:

**Significant / significance:** The expression *significant* is used if a statement is underpinned by a statistical error probability that is below a set acceptance level (e.g.  $p < 0.05$ ; see below). As a consequence the expression *significant* must not be used without statistical confirmation in order to avoid misinterpretation.

**Error probability** (e.g.  $p < 0.05$ ): Refers to the probability of a Type I error (or  $\alpha$ -error) when using inferential statistics (see Figure 4). The error probability is the probability of obtaining the observed effect when in fact the null hypothesis is true.

		Actual Situation	
		No effect ( $H_0 = \text{true}$ )	Effect exists ( $H_0 = \text{false}$ )
Researcher's Decision	Reject $H_0$	<b>Type I / <math>\alpha</math> error</b>	Correct decision
	Accept $H_0$	Correct decision	<b>Type II / <math>\beta</math> error</b>

Figure 4: Errors in hypothesis testing.

**Statistical power:** Refers to the probability of a Type II error (or  $\beta$ -error), that is the probability that no effect was found, but in fact an effect does exist (see Figure 4). *Statistical power*, however, expresses the probability of not making a Type II error (=  $1 - p$  or  $1 - \beta$ ). For most statistical applications the *statistical power* is set to minimum 0.80, corresponding to a  $\beta$ -error probability of  $< 0.2$ .

**Effect size / magnitude of effect:** Refers to the measure of the strength of the relationship between two (or more) variables in a statistical population. The *absolute effect size* describes the difference between the means that describe the effect (e.g. the heart rate difference between carrying two different loads). However, it needs to be considered that the (measured) means of the data samples are not 100% identical to population means, and, thus, the sampling error must be considered as well. For the relative effect size the ratio between the difference between the means and the total variance is calculated (which is similar to the proportion of *explained variance*, see below).

**Explained variance:** Indicates the strength of the relationship between two (or more) variables in a statistical population, compared to (more precisely: in relation to) the effect of all factors. Technically this is the proportion of common variance between two variables relative to the total variance. For the Pearson correlation coefficient the proportion of *explained variance* corresponds to  $R = r^2$ .

**Confidence interval (CI):** This is the interval covering a set percentage of a population around the average, typically 90% or 95% of a population. This term is typically (but not exclusively) applied to normally distributed data. In this case it is defined by the average value  $\pm$  a multiple of the standard deviation.

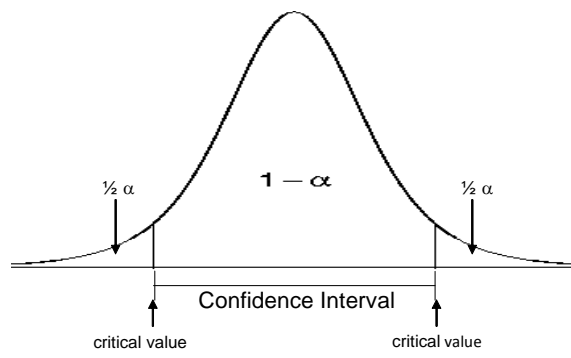


Figure 5: Confidence intervals of normally distributed data.