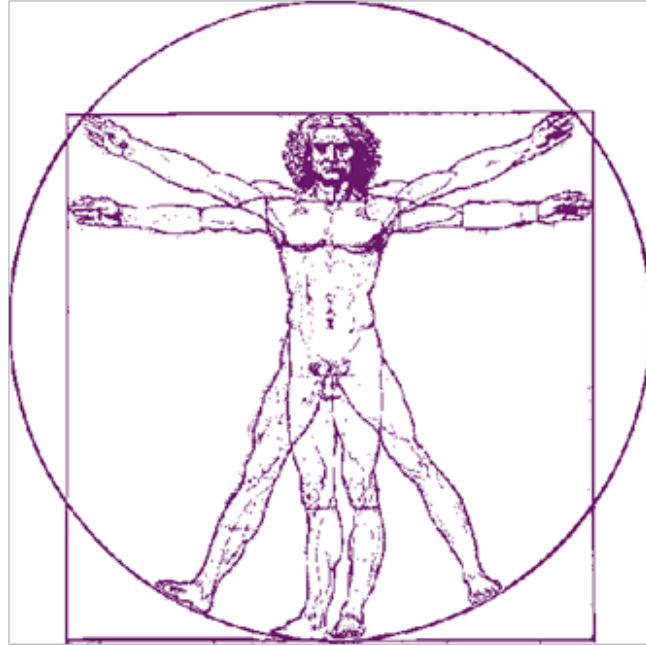


DEPARTMENT OF HUMAN KINETICS AND ERGONOMICS



HKE Handbook 2021 Undergraduate Students

General Information
Timetables
Course Outlines
Assignments and Exam Information



RHODES UNIVERSITY
Where leaders learn

This handbook contains all relevant organisational information for HKE undergraduate students in 2021. Please study it carefully at the beginning of, and regularly during, the academic year and follow the instructions. No excuse will be accepted for ignorance when rules are violated.

Please note that dates and locations may be subject to change. Please check the departmental notice boards for updated information.

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Makhanda, February 2021

Department of Human Kinetics and Ergonomics

Rhodes University

1 General Information

1.1 Department

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).

Departmental Staff:

	<u>phone</u>	<u>email</u>
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Prof C Christie (Associate Professor)	046-603 8470	c.christie@ru.ac.za
Dr S Zschernack (Senior Lecturer & Head of Department)	046-603 8472	s.zschernack@ru.ac.za
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Mrs M Mattison (Lecturer)	046-603 8468	m.mattison@ru.ac.za
Dr J Davy (Lecturer)	046-603 7369	j.davy@ru.ac.za
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Fax machine	046-603 8934	

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

Departmental information:

Please obtain further information from the departmental notice boards or from the departmental website: <http://www.ru.ac.za/humankineticsandergonomics>.

1.2 Access and Security

Entrance to the HKE Department is via the large glass doors from the African Street side. For security reasons these doors will be locked outside of working hours (before 8:30 and after 16:30), during lunch (13:00 to 14:00), as well as during the examination and holiday periods.

To discourage criminals from entering the HKE Department please adhere to the following:

- Avoid using the side door and, if you do use it, ensure that it is properly closed behind you and locked.
- Escort strangers to their point of interest in the Department as well as show them the way out.
- Be vigilant of strangers entering and exiting the Department.
- Report any suspicious people in the Department to the office administrator or

academic staff.

1.3 Plagiarism

Plagiarism is a serious offence and Rhodes University has a Plagiarism Policy, which details the procedures relating to plagiarism at a postgraduate level, as well as further information relating to plagiarism. Students are encouraged to familiarize themselves with the latest version of the Rhodes University Plagiarism Policy, which can be accessed on: <https://www.ru.ac.za/media/rhodesuniversity/content/institutionalplanning/documents/Plagiarism.pdf>. The staff member in charge of dealing with plagiarism cases for 2021 is Dr. Zschernack.

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 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. Take note that the source of copied images (photographs, diagrams, graphs, etc.) also need to be acknowledged. 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 generally 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).

1.4 "Duly Performed" (DP) rule

The "Duly Performed" (DP) rule refers to the minimum requirements a student has to fulfil in order to be allowed to sit for the examinations each semester. The requirements may refer to lecture, practical and tutorial attendance, as well as handing of assignments. Failure to comply with these DP requirements will result in the DP being revoked, meaning that the student may not sit for the semester examinations. Although the "Duly Performed" rule applies to all academic departments at Rhodes, there may be slight variations in the requirements for obtaining the DP.

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 Head of Department 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 their course coordinator or the Head of Department (HoD) in cases of doubt.

1.4.1 DP Requirements for the HKE Department

In the Department of Human Kinetics and Ergonomics the earning of a DP certificate, and hence being allowed to sit for the examinations, is dependent upon the following requirements:

1. Attendance of **at least 75%** of tutorials for first and second year students
2. Attendance at **ALL** tests and laboratories through the year.
3. Submission of **ALL** assignments (including laboratory write-ups).

Please be aware that **signing on behalf of another person**, even if only for an attendance register, is a fraudulent action and thus a severe violation of law which will be prosecuted, possibly leading to an exclusion from the University.

1.4.2 Leave of Absence (LOA)

In the event of missing a test, a tutorial, a laboratory session or not submitting an assignment, the relevant lecturer or course coordinator must be given a valid reason for the absence or omission by submitting a "Leave-of-Absence" form (LOA), which can be obtained from the Office Administrator's office. This LOA application has to be accompanied with supporting evidence (e.g. original doctor's note, letter from parent / sports admin) and be submitted within a week of the missed activity, unless arranged otherwise with the course coordinator or the office administrator. According to University rules, **illness, university sporting events, or serious family issues are the only accepted reasons** for having an LOA granted. In case of any doubt, the course coordinator or HoD must be consulted **BEFORE** the student misses a test, tutorial, laboratory or assignment deadline. With exception of medical reasons, the LOA has to be submitted **BEFORE** missing the tutorial, practical, assessment or assignment.

If the LOA is not approved, then the HoD will be notified, a **DP warning** will be issued the first time and, in the case of an assignment that was not submitted, the student will be given a mark of 0% for the assignment. The second time any DP rule is transgressed, the **DP will be denied**. If the reason is approved, it is up to the discretion of the individual lecturer whether to request a make-up assignment from the student, else the class record will be calculated from the remaining assignments.

Please note that if a practical requiring a laboratory report was not attended, or an assignment deadline was missed (for a valid reason as listed above), **submission of the assignment is still required**; the LOA will merely grant an **extension**. It is important that the student consults the relevant lecturer to discuss details.

1.4.3 Activity Profiling

The HKE Department keeps a record of all the HKE-related activities students choose to be involved in during their time in the Department. These are activities over and above the compulsory activities stated above, and may involve being a class representative, tutoring, participating in consultancies, community engagement projects, or simply administrative assistance. 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 postgraduate studies.

Participation in research activities particularly is considered a huge educational experience, and all undergraduate students are therefore strongly encouraged 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. a 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 of the activities he/she has been involved in. 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) Type of 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: Admin tasks (e.g. sorting theses, tidying labs etc.)

1.5 Lecture attendance

Attendance at lectures is not compulsory, but it is **strongly recommended** to attend and participate in **all** lectures. Subsequent lectures mostly relate to each other, so any missed lecture makes it difficult to follow the course content. Lecture materials dispensed by the lecturers or notes from other students cannot replace an own understanding gained from a lecture. Please note that 40% of the final mark is based on each semester's class work. Also be aware that it is each individual's responsibility to acquire the knowledge required

to pass the exams!

1.6 Tutorial System

Tutorials refer to small formal discussion groups held weekly that each first and second year student is obliged to attend. They are designed to complement the lectures by recapping work done in class and answering questions; 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 to developing observational, deductive and interpretive skills.

Each student must attend one tutorial during 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. **Please note that for tutorials a minimum attendance rate per semester of 75% is a DP requirement.** Short tutorial assignments are compulsory and form part of the class mark.

All concerns with regards to tutorials should be addressed to the overall tutorial coordinators Dr Jonathan Davy (j.davy@ru.ac.za) in semester 1 and Prof Candice Christie (c.christie@ru.ac.za) in semester 2.

1.7 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 welcomed by 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 I:	M Mattison
HKE II:	J Davy (semester 1); S Zschernack (semester 2)
HKE III:	A Todd
HKE Honours:	C Christie
HKE Masters & PhD:	C Christie
Tutorial Coordinator:	J Davy (semester 1); C Christie (semester 2)

Performance monitoring

Staff endeavour to provide students with feedback about their performance in tests and assignments within 2 weeks of writing the test or submitting the assignment. Students are encouraged to enquire about their class mark with their course co-ordinator and make use of this opportunity to monitor their own performance regularly and request support early enough.

Students are also encouraged to meet with the relevant lecturer(s) for any questions which

may arise during the term or exam preparation. Similarly, the HoD, lecturers and tutors are prepared to provide assistance with working through past exams.

1.8 Communication between staff and students

Each student is issued with a Rhodes University webmail email address. This address is used for **all formal communications** between the HKE Department and individual students. It is the responsibility of each student to **regularly check** his/her email inbox. Failure to check the Rhodes student email address does not constitute a valid excuse for not receiving a message.

The HKE Department also has notice boards for undergraduate students on which timetables, lab schedules, practical groups and other events are announced. It is each student's responsibility to **regularly check** these notice boards in case changes have occurred.

Announcements may also be made during lecture times and students are therefore advised to regularly check all avenues of communication. Again, failure to attend lectures does not constitute a valid excuse for not receiving an announcement.

1.9 Functions / Guest Speakers

Visiting lecturers, guest speakers or functions will be announced via the HKE notice boards and lectures.

1.10 Dates of Terms for 2021

Please note that these dates could be subject to change and students should regularly consult the university or department about any changes.

1st Semester

1st Term: Monday 15 March – Friday 23 April (6 teaching weeks)

2nd Term: Monday 3 May – Friday 9 July (7 teaching weeks)

Term 2 lectures end: Friday 18 June

Swot week: Saturday 19 June – Tuesday 22 June

Examinations: Wednesday 23 June – Friday 9 July

2nd Semester

3rd Term: Monday 26 July – Friday 3 September (6 teaching weeks)

4th Term: Monday 13 September – Tuesday 30 November (7 teaching weeks)

Term 4 lectures end: Friday 29 October

Swot week: Saturday 30 October – Wednesday 3 November

Examinations: Thursday 4 November – Tuesday 30 November

2 General Course Information

2.1 Admission to study HKE

Any student accepted by Rhodes University is eligible to register for HKE. Students intending to major in HKE must be registered either in a BSc, BA, BCom or BJourn program. Please consider timetable clashes with other subjects as limiting factors when planning your degree.

2.2 University academic requirements

In order to obtain a BSc, BA, BCom or BJourn degree, it is each student's responsibility to ensure that the respective faculty requirements have to be met (either refer to the 2020 Rhodes University calendar, the faculty website, or consult the Faculty Dean).

2.3 Structure of the HKE undergraduate degree

HKE undergraduate courses (Bachelor's Degree):

All courses comprise of two semester courses (e.g. HKE 101 and HKE 102).

1st year: Human Kinetics and Ergonomics I (HKE I = HKE 101 + HKE 102)

2nd year: Human Kinetics and Ergonomics II (HKE II = HKE 201 + HKE 202)

3rd year: Human Kinetics and Ergonomics III (HKE III = HKE 301 + HKE 302)

In order to pass from one level to the next (e.g. from HKE I to HKE II) all semester-credits at the lower level are required.

HKE undergrad courses consist of different lecture modules and corresponding laboratory practicals. First and second year students also have to attend weekly tutorials. Table 1 provides a break-down of the various modules offered in each of the courses per semester.

Table 1: Module structure of the HKE degree.

HKE 101	HKE 102
Integration and Application 101	Biophysical Domain 102: Functional Anatomy of the Upper Extremities
Biophysical Domain 101: Introduction to the Biophysical Domain	Cognitive Domain 102: Human Senses
Physiological Domain 101: Cardiovascular & Respiratory Physiology	Integration and Application 102

HKE 201	HKE 202
Integration and Application 201	Physiological Domain 202: Neuromuscular Physiology
Cognitive Domain 201: Information Processing	Cognitive Domain 202: Attention & Situation Awareness
Biophysical Domain 201: Functional Anatomy of the Lower Extremities	Integration and Application 202
Biophysical Domain 201: Linear Kinetics & Kinematics of Human Movement	

HKE 301	HKE 302
Integration & Application 301	Physiological Domain 302: Endocrinology
Cognitive Domain 301: Perceptual Motor Control	Biophysical Domain 3020: Functional Anatomy of the Trunk & Spine
Physiological Domain 301: Exercise Physiology	Biophysical Domain 302: Angular Kinetics & Kinematics of Human Movement
	Cognitive Domain 302: Human Error & Reliability
	Integration & Application 302

2.4 Postgraduate Studies in HKE

Postgraduate Honours course in HKE

The Honours course in Human Kinetics and Ergonomics is a one-year full-time attendance joint seminar- and thesis-based course. It is aimed at providing graduates with research knowledge and application skills for responsible management and consultancy posts as well as for further academic degrees.

Minimum requirement for admission to HKE Honours 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 (refer to "Activity Profiling" – section 1.4.3). Staff capacity and senior postgraduate supervision load are other important considerations.

HKE Masters

Thesis based; 2 year duration full time or 3 year duration part time.

2.5 Departmental infrastructure and services

Photocopying, scanning and printing services

Photocopies (and, if technology permits, printouts from flash stick to the photocopier) are 45c per copy (may be subject to change). **There are NO “I.O.U’s”**. Please ask the Office Administrator to assist in operating the machine. Count the number of pages you copy and pay your money to the Office Administrator.

Colour printing can be done via the Office Administrator’s DeskJet colour printer and is charged at R4.50 per page (may be 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.

Library

HKE-related books (including textbooks) are kept in the Main Rhodes Library. Core readings for the various modules have been placed in “short-loan” section of the Rhodes University Library.

Furthermore, all periodicals (journals) relating to HKE can be found in the Main Rhodes Library on central campus. Only past research reports, projects and theses are held in the Department, many of which are also accessible electronically (either via the Rhodes Library website for more recent MSc and PhD theses, or via the Office Administrator for Honours projects and older MSc and PhD theses). Please see the Department’s Office Administrator if you want to gain access to these.

HKE I (1st year)

Two semester credits: HKE 101 and HKE 102.

Course coordinator: M Mattison (email: m.mattison@ru.ac.za, phone: 046-603 8468)

2.6 Admission into HKE I

Any student accepted by Rhodes University is eligible to register for HKE I. Students intending to major in HKE must be registered either in a BSc, BA, BCom or BJourn program. A science background is beneficial, but not a requirement.

Students are strongly encouraged to take up Statistics 1 as a credit, as basic statistical knowledge will be required for interpretation and application during assignments such as laboratory reports.

Students without a high school biological or physical science background also stand to benefit from the Physics 1E1 and/or Maths 1S (also known as Maths for Life Science) and Cell Biology 101 course.

2.7 Structure of HKE I

Please note that in the Covid-19 context, the details of the 2021 HKE 1 course below may be subject to change. Any changes to the activities scheduled for HKE 1 will be communicated to students by the HKE Department.

Lectures

Lectures, laboratories and tutorials take place during the following lecture periods throughout the year.

Mon	9.35 - 10.20	Lecture
Tues	10.30 - 11.15	Lecture
Wed	11.25 - 12.10	Lecture
Fri	8.40 - 9.25	Lecture
Thu / Fri	14.00 - 16.00	Laboratory (students will be allocated to ONE slot)

Lecture terms vary between six and seven weeks per term:

1st term: Mon 15 March – Fri 23 April (6 lecture weeks);

2nd term: Mon 3 May – Fri 18 June (7 lecture weeks);

3rd term: Mon 26 July – Fri 3 September (6 lecture weeks);

4th term: Mon 13 September – Fri 29 October (7 lecture weeks).

Table 2 depicts the various HKE modules taught throughout the year.

Please note that these are provisional dates and may be subject to change. The Department therefore reserves the right to adjust these, as may be necessary throughout the year. Any changes will be communicated to students via the HKE 1 noticeboard and/or via email.

Table 2: Module structure for HKE I.

	Term	Module	Lecturer	Dates
HKE 101	1	Integration and Application 101	J Davy	Mon 15 Mar – Wed 24 Mar (7 lectures)
		Biophysical Domain 101: Introduction to the Biophysical Domain	A Todd	Thu 25 Mar – Fri 23 Apr (17 lectures)
	2	Physiological Domain 101: Cardiovascular & Respiratory Physiology	C Christie & L Pote	Tue 03 May – Fri 18 Jun (28 lectures)
HKE 102	3	Biophysical Domain 102: Functional Anatomy of the Upper Extremities	M Mattison	Mon 26 Jul – Fri 27 Aug (20 lectures)
		Cognitive Domain 102: Human Senses	S Zschernack	Mon 30 Aug – Fri 03 Sep (4 lectures)
	4	Cognitive Domain 102: Human Senses (cont.)	S Zschernack	Mon 13 Sep – Mon 18 Oct (21 lectures)
		Integration and Application 102	TBA	Tue 19 Oct – Fri 29 Oct (7 lectures)

Laboratory practicals:

Weekly laboratory practicals, either on a Thursday or Friday afternoon (please check your allocated day on the HKE I notice board), will be held in association with the lectures and for general skills development. Students may be requested to hand in worksheets or write-ups for some practicals. Please consider the format guide (section 7) when writing these documents.

Table 3 contains the provisional topics for HKE I practicals. Please note that these may be subject to change; updated practical schedules will be displayed on the HKE noticeboard, so make a point of checking it regularly!

Table 3: Preliminary topics of laboratories in HKE I (please check notice boards in the Department for updates and be prepared for practicals scheduled within the allocated period EVERY Thursday / Friday except for public holidays).

Term	Week of	Module	Lecturer
1	15 Mar	Integration & Application	Davy
	22 Mar	Integration & Application	Davy
	29 Mar	Biophysical Domain 1	Todd
	05 Apr	Biophysical Domain 2	Todd
	12 Apr	Biophysical Domain 3	Todd
	19 Apr	Biophysical Domain 4	Todd
2	03 May	Physiological Domain 1	Pote
	10 May	Physiological Domain 2	Pote
	17 May	Physiological Domain 3	Pote
	24 May	Physiological Domain 4	Pote
	31 May	Physiological Domain 5	Pote
	07 Jun	Physiological Domain 6	Pote
	14 Jun	Physiological Domain 7	Pote
3	26 Jul	Biophysical Domain 1	Mattison
	02 Aug	Biophysical Domain 2	Mattison
	09 Aug	Biophysical Domain 3	Mattison
	16 Aug	Biophysical Domain 4	Mattison
	23 Aug	Biophysical Domain 5	Mattison
	30 Aug	Cognitive Domain 1	Zschernack
	4	13 Sep	Cognitive Domain 2
20 Sep		Cognitive Domain 3	Zschernack
27 Sep		Cognitive Domain 4	Zschernack
04 Oct		Cognitive Domain 5	Zschernack
11 Oct		Cognitive Domain 6	Zschernack
18 Oct		Integration & Application	TBA
25 Oct		Integration & Application	TBA

Tutorials:

Every first year student has to attend 75% of all tutorials each semester, which means that missing more than three tutorials per semester will result in that student's DP being revoked, i.e. he / she will not be allowed to write the HKE examinations. Students may only miss more than three tutorials if they have filled out a leave of absence (LOA) form, accompanied by a letter stating a valid reason for their absence, which is to be handed in to the Office Administrator. With exception of medical reasons, the LOA has to be submitted **before** missing the tutorial.

With regards to written work, each student will have occasional tutorial assignments to hand in per term. All tutorial work must be handed in on the specified date and time. This work may count for marks.

Any complaints or problems that students may have with the tutorials, the work, or the tutors should be brought to the attention of the first year course coordinator or the tutorial coordinator.

Supplementary Instruction:

Over and above the lectures, practicals and tutorials supplementary instruction (SI) sessions are offered on request. Students are asked to identify and express the need for such sessions directly to the course or tutorial coordinators, or via the class representatives.

Please note: Supplementary Instruction sessions are NOT intended to be last-minute "cramming" sessions, or opportunities to catch up lecture content from missed lectures. They are small-group discussions during which students can **clarify** concepts they do not understand. Students are encouraged to proactively seek support throughout the semester if they feel they do not understand the lecture contents.

2.8 Tests, assignments and examination in HKE I

Each module's lecturer will set tests and assignments to his/her discretion and dates will be announced in lectures and via the HKE I notice board. The marks from these assignments will be collated to produce a class mark for each module. The module class marks for the semester will build the class record which contributes 40% to the total semester mark.

The two examination papers (each 3 hrs) at the end of each semester together contribute 60% to the total semester mark (see Table 4).

Table 4: Mark composition of HKE I.

		HKE 101		HKE 102	
Class record	(40%)	5%	Integration & Application	15%	Biophysical Domain
		15%	Biophysical Domain	20%	Cognitive Domain
		20%	Physiological Domain	5%	Integration & Application
Examinations	(60%)	30%	<u>Paper 1 (3hrs):</u> Integration & Application + Biophysical Domain	30%	<u>Paper 1 (3hrs):</u> Biophysical Domain + Integration & Application
		30%	<u>Paper 2 (3hrs):</u> Physiological Domain	30%	<u>Paper 2 (3hrs):</u> Cognitive Domain
Total	(100%)				

Pass criteria:

A pass mark at Rhodes University is 50% or higher (class record and examinations combined). Admission to the second semester of HKE (HKE 102) requires a sub-minimum mark of 40% in HKE 101. Students with an examination mark of 40-49% are considered for supplementary exams for both semesters (this is only optional for HKE 1).

In order to pass into the next year (HKE 201) the overall final marks for both semester courses must aggregate (average) to at least 50%, with a sub-minimum of 40% required for each semester (i.e. HKE 101 and HKE 102).

2.9 Course content for HKE I

The following modules make up the HKE I course. Please note that the details listed under each module are a guideline only and may be subject to change.

Integration and Application (parts 1 & 2) in HKE 101 & 102 (J. Davy & Teaching Assistant)

The objective of this module is to establish the appropriate "mind-set" for a thorough understanding of the study of *Human Kinetics and Ergonomics*.

Starting from a consideration of what the philosophy of the department is, the particularities of the functioning and the behaviour of humans are outlined. This serves to explain the complexity of studying the humans within the different contexts of today's life and how we, as human movement specialists, are able to do so from a holistic perspective.

Topics include:

- Introduction to systems theory and systems thinking
- Understanding the aims and objectives of Human Kinetics and Ergonomics
- Understanding how humans are designed and why humans are designed to move
- Introduction to the three domains/human systems of study in the department: the Biophysical domain (comprised of Anthropometry, Anatomy and Biomechanics), the Physiological domain and the Cognitive domain (psychology)

The course finishes with the application of domains to understanding human movement, which is grounded in sporting, working and everyday activity examples.

Biophysical Domain in HKE 101 (A. Todd)

This module serves as a basic introduction to the biophysical analysis of human movement. It first introduces the study of Anatomy, Biomechanics and Anthropometry, followed by an introduction to kinetic and kinematic concepts and the implications these have for human movement. These include: forms of motion, reference terminology, mechanical loads on the body and their effects, as well as concepts of inertia, mass, force and centre of gravity. The laboratory and tutorials provide further practical examples of the application of these principles to activities of daily living, sport and the work environment. By the end of the module, the students will have a sound understanding of the basic nomenclature of the biophysical domain, and how to apply this to basic human movement characteristics.

Physiological Domain in HKE 101 (C. Christie)

This module introduces the subject of physiology and focuses specifically on the structure and function of the cardiovascular and respiratory systems, as well as the concept of energy systems. How these systems respond to physical activity will be a key focus.

Biophysical Domain in HKE 102 (M. Mattison)

This module introduces the study of musculoskeletal anatomy and focuses on the functional application of the musculoskeletal system to movement. Structures of the upper extremities are covered in detail and related to movement capabilities as well as selected injury mechanisms. Practicals provide a hand-on opportunity to explore the skeletal system, as well as perform basic functional assessments of the upper extremities.

Cognitive Domain in HKE 102 (S. Zschoernack)

The only way to receive information from the environment is through the senses. Sensation and perception are the first steps in human information processing. Accurate sensation and perception of information is a prerequisite for any type of performance. This module will focus specifically on the visual, auditory and body senses. It will provide insight into the anatomical structure of the sensory organ and its physiology, and the physical and chemical characteristics of the stimulus, as well as discuss how sensations are processed in the brain to provide meaning (perception).

2.10 Prescribed books for HKE I

Hall, S.B. (2014). *Basic Biomechanics* (7th ed. or earlier). Boston: McGraw-Hill International. (ISBN 9780073522760).

Tortora, G.J., & Derrickson, B.H. (2011). *Principles of Anatomy & Physiology* (13th ed. or earlier). New York: Wiley & Sons. (ISBN: 978 0470929186).
(Please note: the more recent editions have two volumes)

3 HKE II (2nd year)

Two semester credits: HKE 201 and HKE 202.

Course coordinator: J Davy (email: j.davy@ru.ac.za, phone: 046 603 7369)

3.1 Admission into HKE II

An aggregated pass mark for HKE I (minimum 50%) is a minimum requirement for admission to HKE II.

3.2 Structure of HKE II

Please note that in the Covid-19 context, the details of the 2021 HKE 2 course below may be subject to change. Any changes to the activities scheduled for HKE 2 will be communicated to students by the HKE Department.

Lectures:

Lectures, laboratories and tutorials take place during the following lecture periods throughout the year.

Mon	11.25 - 12.10	Lecture
Wed	8.40 - 9.25	Lecture
Thu	9.35 - 10.20	Lecture
Fri	10.30 - 11.15	Lecture

Mon / Wed 14.00 - 17.00 Laboratory (students will be allocated to ONE slot)

Tutorials as per arrangement

Module Structure:

Lecture terms vary between six and seven weeks per term:

1st term: Mon 15 March – Fri 23 April (6 lecture weeks);

2nd term: Mon 3 May – Fri 18 June (7 lecture weeks);

3rd term: Mon 26 July – Fri 3 September (6 lecture weeks);

4th term: Mon 13 September – Fri 29 October (7 lecture weeks).

Table 5 depicts the various HKE modules taught throughout the year.

Please note that these are provisional dates and may be subject to change. The Department therefore reserves the right to adjust these, as may be necessary, throughout the year. Any changes will be communicated to students via the HKE 2 noticeboard and/or via email.

Table 5: Module structure for HKE II.

	Term	Module	Lecturer	Dates
HKE 201	1	Integration & Application 201	A Todd	Mon 15 Mar – Fri 02 Apr (12 lectures)
		Cognitive Domain 201: Information Processing	S Zschernack	Mon 05 Apr – Fri 23 Apr (12 lectures)
	2	Biophysical Domain 201: Functional Anatomy of the Lower Extremities	M Mattison	Mon 03 May – Wed 26 May (14 lectures)
		Biophysical Domain 201: Linear Kinetics & Kinematics	A Todd	Thu 27 May – Fri 18 Jun (14 lectures)
HKE 202	3	Physiological Domain 202: Neuromuscular Physiology	C Christie	Mon 26 Jul – Fri 03 Sep (24 lectures)
	4	Cognitive Domain 202: Attention & Situation Awareness	S Zschernack	Mon 13 Sep – Wed 06 Oct (14 lectures)
		Integration & Application 202	A Todd	Thu 07 Oct – Fri 29 Oct (14 lectures)

Laboratory Practicals

Weekly laboratory practicals will be held in association with the lectures and for general skills (see Table 6). Students may be requested to hand in worksheets or write-ups for some practicals. Please consider the format guide for the writing of those documents.

Table 6: Preliminary topics of laboratory in HKE II (please check notice boards in the department for updates and be prepared for practicals scheduled within the practical periods EVERY Monday/Wednesday (except for public holidays).

Term	Week of	Subject	Lecturer
1	15 Mar	Integration & Application 1	Todd
	22 Mar	Integration & Application 2	Todd
	29 Mar	Integration & Application 3	Todd
	05 Apr	Cognitive Domain: Information Processing 1	Zschernack
	12 Apr	Cognitive Domain: Information Processing 2	Zschernack
	19 Apr	Cognitive Domain: Information Processing 3	Zschernack
2	03 May	Biophysical Domain: Functional Anatomy 1	Mattison
	10 May	Biophysical Domain: Functional Anatomy 2	Mattison
	17 May	Biophysical Domain: Functional Anatomy 3	Mattison
	24 May	Biophysical Domain: Functional Anatomy 4	Mattison
	31 May	Biophysical Domain: Linear Kinetics & Kinematics 1	Todd
	07 Jun	Biophysical Domain: Linear Kinetics & Kinematics 2	Todd
	14 Jun	Biophysical Domain: Linear Kinetics & Kinematics 3	Todd
3	26 Jul	Physiological Domain: Neuromuscular Physiology 1	Christie
	02 Aug	Physiological Domain: Neuromuscular Physiology 2	Christie
	09 Aug	Physiological Domain: Neuromuscular Physiology 3	Christie
	16 Aug	Physiological Domain: Neuromuscular Physiology 4	Christie
	23 Aug	Physiological Domain: Neuromuscular Physiology 5	Christie
	30 Aug	Physiological Domain: Neuromuscular Physiology 6	Christie
4	13 Sep	Cognitive Domain: Attention & Situational Awareness 1	Zschernack
	20 Sep	Cognitive Domain: Attention & Situational Awareness 2	Zschernack
	27 Sep	Cognitive Domain: Attention & Situational Awareness 3	Zschernack
	04 Oct	Cognitive Domain: Attention & Situational Awareness 4	Zschernack
	11 Oct	Integration & Application 1	Todd
	18 Oct	Integration & Application 2	Todd
	25 Oct	Integration & Application 3	Todd

Tutorials:

Every second year student has to attend 75% of all tutorials each semester, which means that missing more than three tutorials per semester will result in that student's DP being revoked. Students may only miss more tutorials if they have filled out a leave of absence form, accompanied by a letter stating a valid reason for their absence, which is to be handed in to the Office Administrator.

Concerning written work, each student may have occasional tutorial assignments to hand in per term, which may count for marks. The topics for each piece of work will be handed to each student a week before it is due.

Any complaints or problems that students may have with the tutorials, the work or the tutors should be brought to the attention of the second year laboratory or tutorial coordinator.

Supplementary Instruction:

Supplementary instruction sessions are offered on request. Students are asked to identify and express the need for such sessions directly to the course or tutorial coordinators, or via the class representatives well in advance of the examinations.

Please remember that Supplementary Instruction sessions are **NOT** intended to be last-minute "cramming" sessions, or opportunities to catch up lecture content from missed lectures. They are small-group discussions during which students can **clarify** concepts they do not understand. As such they will **NOT** be held during the least week of term or during swot week and students are encouraged to proactively actively seek support throughout the semester if they feel they do not understand the lecture contents.

3.3 Tests, assignments and examinations in HKE II

Each module's lecturer will set tests and assignments to his/her discretion. The marks from these assignments will be averaged to produce a class mark for each module. The module class marks for the semester will, in conjunction with the tutorial mark, build the class record, which contributes 40% to the total semester mark.

The HKE II examination at the end of each semester exists of two papers (each 3hrs) which together contribute 60% to the total semester mark (see Table 7).

Table 7: Mark composition of HKE II.

		HKE 201		HKE 202	
Class record	(40%)	10 %	Integration & Application	20%	Physiological Domain
		10%	Cognitive Domain	10%	Cognitive Domain
		20%	Biophysical Domain	10%	Integration & Application
Examinations	(60%)	30%	<u>Paper 1 (3hrs) :</u> Integration & Application & Cognitive Domain	30%	<u>Paper 1 (3hrs):</u> Physiology
		30%	<u>Paper 2 (3hrs):</u> Biophysical Domain	30%	<u>Paper 2 (3hrs):</u> Cognitive Domain and Integration & Application
Total	(100%)				

Pass criteria:

Admission to second semester HKE 202 requires a sub-minimum of 40% in HKE 201. In order to pass into the next year the overall final marks for both semester courses must aggregate to at least 50% (average year mark), with a sub-minimum of 40% required for each HKE 201 and HKE 202.

Students have to have obtained a pass for HKE II in order to be allowed into HKE III.

Second year students are **NOT** considered for supplementary exams!

3.4 Course content for HKE II

The following modules make up the HKE II course. Please note that the details listed under each module are a guideline only and may be subject to change.

Integration and Application in HKE 201 (A. Todd)

Integration and Application 201 introduces students to basic components of motor performance and skill, with the intention of capacitating the students to assess human performance in a simple, ethical and professional way. Furthermore, students will be introduced to the fundamental concepts behind design and designing for humans, the importance of data and how to use data to design for humans. The course content is applicable to sport and work contexts and to general areas of everyday life.

Cognitive Domain in HKE 201 (S. Zschernack)

Once information has been perceived, a decision has to be reached before an action can be effected. This module focuses on established models of information procession and, in particular, the so-called central processes of information processing: memory and decision-making. Furthermore, guidelines that support accurate decision making in different settings will be discussed.

Biophysical Domain in HKE 201 (A. Todd & M. Mattison)

This module integrates the functional anatomy of the lower extremities with biomechanical concepts to construct a basic understanding of the key concepts for the mechanical analysis of the human body under static and dynamic conditions. The anatomical structures of the pelvis, hip, knee and foot are covered in detail, and related to movement capabilities, as well as selected injuries. Biomechanical concepts include centre of mass, friction, force, work, power and the concept of energy. These concepts are integrated to show how the biomechanics and anatomy of the lower extremity interact to create locomotory movement. The practicals and tutorials associated with this module will provide further scaffolding to ensure that students have a sound understanding of how the biophysical components interact with each other to support human movement in a variety of contexts.

Physiological Domain in HKE 202 (C. Christie)

This module focusses on the structure and function of skeletal muscle tissue, the neuromuscular connection and the process of muscle contraction and relaxation. The module then discusses changes in skeletal muscle in response to training, when cramping during exercise and when fatigued, to name some examples.

Cognitive Domain in HKE 202 (S. Zschoernack)

The way humans process information is, among other aspects, affected by the way individuals direct their attention and how they are aware of the situation and their environment. The module covers different theories of attention and situational awareness, as well as their application to understanding human performance.

Integration and Application in HKE 202 (A. Todd)

The purpose of this module is to integrate the knowledge gained in HKE 201 and 202 through applied examples. The focus will be on illustrating the application of basic biophysical, physiological and cognitive domain knowledge to the human gait cycle as well as activities of daily living, ergonomics and sports science. Students will gain an understanding of the importance of understanding the interactions between different domains of specialisation within Human Kinetics and Ergonomics and how these interactions impact performance.

3.5 Prescribed books for HKE II

Bridger, R.S. (2008). *Introduction to Ergonomics* (3rd ed., or earlier). London: Taylor & Francis. (ISBN 9780849373060).

Hall, S.B. (2014). *Basic Biomechanics* (7th ed. or earlier). Boston: McGraw-Hill International. (ISBN 9780073522760).

McArdle, W.D., Katch, F.I. & Katch, V.L. (2014). *Exercise Physiology: Energy, Nutrition and Human Performance*. (8th ed., or any earlier edition). Philadelphia: Lea & Febiger. (ISBN 9781451193831).

Tortora, G.J., & Derrickson, B.H. (2011). *Principles of Anatomy & Physiology* (13th ed. or earlier). New York: Wiley & Sons. (ISBN: 978 0470929186).

(Please note: the more recent editions have two volumes)

4 HKE III (3rd year)

Two semester credits: HKE 301 and HKE 302.

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

4.1 Admission into HKE III

Students must have passed HKE II (aggregated HKE 201 and 202: minimum 50%).

4.2 Structure of HKE III

Please note that in the Covid-19 context, the details of the 2021 HKE 3 course below may be subject to change. Any changes to the activities scheduled for HKE 3 will be communicated to students by the HKE Department.

Lectures:

Lectures, laboratories and tutorials take place during the following lecture periods throughout the year.

Mon 10.30 - 11.15 Lecture

Tues 11.25 - 12.10 Lecture

12.20 - 13.05 Lecture

Wed 7.45 - 8.30 Lecture

Thurs 8.40 - 9.25 Lecture

Fri 9.35 - 10.20 Lecture

Tues 14.00 - 17.00 Laboratory practical

Module Structure:

Lecture terms vary between six and seven weeks per term:

1st term: Mon 15 March – Fri 23 April (6 lecture weeks);

2nd term: Mon 3 May – Fri 18 June (7 lecture weeks);

3rd term: Mon 26 July – Fri 3 September (6 lecture weeks);

4th term: Mon 13 September – Fri 29 October (7 lecture weeks).

Table 5 depicts the various HKE modules taught throughout the year.

Please note that these are provisional dates and may be subject to change. The Department therefore reserves the right to adjust these, as may be necessary, throughout the year. Any changes will be communicated to students via the HKE 2 noticeboard and/or via email.

Table 8: Module structure for HKE III.

	Term	Module	Lecturer	Dates
HKE 301	1	Integration & Application	J Davy	Mon 15 Mar – Tue 30 Mar
		Cognitive Domain: Perceptual Motor Control	S Zschernack	Wed 31 Mar – Fri 23 Apr
	2	Cognitive Domain: Perceptual Motor Control (cont.)	S Zschernack	Mon 3 May – Thu 13 May
		Physiological Domain: Exercise Physiology	C Christie	Fri 14 May – Fri 18 Jun
HKE 302	3	Physiological Domain: Endocrinology	TBA	Mon 26 Jul – Wed 11 Aug
		Biophysical Domain: Functional Anatomy of the Trunk & Spine	M Mattison	Thu 12 Aug – Fri 27 Aug
		Biophysical Domain: Biomechanics – Angular Kinematics & Kinetics	A Todd	Mon 30 Aug – Thu 03 Sep
	4	Biophysical Domain: Biomechanics (cont.)	A Todd	Mon 13 Sep – Wed 22 Sep
		Cognitive Domain: Human Error & Reliability	A Todd	Thu 23 Sep – Tue 12 Oct
		Integration & Application	TBA	Wed 13 Oct – Fri 29 Oct

Research Project:

Throughout the course of the year, students will also be involved in conducting a group-based research study. One weekly lecture is dedicated to guiding students through the theoretical aspects of the research process. In addition, each group is assigned a supervisor who will regularly meet with the research group outside of lecture times to discuss specific aspects of their project. Regular formative and summative assessments of the research project occur throughout the year, including the examination.

Laboratory practicals:

Laboratory practicals will be held in association with the lectures and for general skills (see Table 9). Students may be requested to hand in worksheets or with write-ups for each practical. Please consider the format guide (section 9) for writing.

Table 9: Preliminary topics of laboratory practicals in HKE III (please check displays at the department for updates and be prepared for practicals scheduled within the practical periods EVERY Tuesday (except for public holidays)).

Term	Week of	Subject	Lecturer
1	15 Mar	Integration & Application 1	Davy
	22 Mar	Integration & Application 2	Davy
	29 Mar	Integration & Application 3	Davy
	05 Apr	Cognitive Domain: Perceptual Motor Control 1	Zschernack
	12 Apr	Cognitive Domain: Perceptual Motor Control 2	Zschernack
	19 Apr	Cognitive Domain: Perceptual Motor Control 3	Zschernack
2	03 May	Cognitive Domain: Perceptual Motor Control 4	Zschernack
	10 May	Cognitive Domain: Perceptual Motor Control 5	Zschernack
	17 May	Physiological Domain: Exercise Physiology 1	Christie
	24 May	Physiological Domain: Exercise Physiology 2	Christie
	31 May	Physiological Domain: Exercise Physiology 3	Christie
	07 Jun	Physiological Domain: Exercise Physiology 4	Christie
	14 Jun	Physiological Domain: Exercise Physiology 5	Christie
3	26 Jul	Physiological Domain: Endocrinology 1	TBA
	02 Aug	Physiological Domain: Endocrinology 2	TBA
	09 Aug	Physiological Domain: Endocrinology 3	TBA
	16 Aug	Biophysical Domain: Functional Anatomy 1	Mattison
	23 Aug	Biophysical Domain: Functional Anatomy 2	Mattison
	30 Aug	Biophysical Domain: Functional Anatomy 3	Mattison
4	13 Sep	Biophysical Domain: Biomechanics 1	Todd
	20 Sep	Biophysical Domain: Biomechanics 2	Todd
	27 Sep	Cognitive Domain: Human Error & Reliability 1	Todd
	04 Oct	Cognitive Domain: Human Error & Reliability 2	Todd
	11 Oct	Cognitive Domain: Human Error & Reliability 3	Todd
	18 Oct	Integration & Application 1	TBA
	25 Oct	Integration & Application 2	TBA

Tutorials / Supplementary Instruction

There are **no** formal tutorials for third year students. However, supplementary instruction sessions can be arranged on demand of the students.

4.3 Tests, assignments and examination in HKE III

Each module's lecturer will set tests and assignments to his/her discretion. The marks from these assignments will be averaged to produce a class mark for each module. The module class marks for the semester will build the class record which contributes 40% to the total semester mark. The three examination papers (each 2 hrs) at the end of each semester contribute 60% to the total semester mark (Table 10).

Table 10: Mark composition of HKE III.

		HKE 301	HKE 302
Class record (40%)	13.3%	Integration & Application (incl. Research Project)	13.3% Integration & Application (incl. Research Project)
	13.3%	Cognitive Domain	6.67% Physiological Domain
	13.3%	Physiological Domain	6.67% Cognitive Domain
Examinations (60%)			13.3% Biophysical Domain
	20%	<u>Paper 1 (2hrs):</u> Integration & Application (incl. Research Project)	20% <u>Paper 1 (2hrs):</u> Integration & Application (incl. Research Project)
	20%	<u>Paper 2 (2hrs):</u> Cognitive Domain	20% <u>Paper 2 (2hrs):</u> Physiological Domain + Cognitive Domain
	20%	<u>Paper 3 (2hrs):</u> Physiological Domain	20% <u>Paper 3 (2hrs):</u> Biophysical Domain
Total (100%)			

Pass criteria:

The overall final marks for both semester courses must aggregate to at least 50% (aggregated year mark), with a sub-minimum of 40% required for each HKE 301 and HKE 302. Admission to second semester HKE 302 requires a sub-minimum of 40% in HKE 301. Third year students are **NOT** considered for supplementary exams!

4.4 Course content for HKE III

The following modules make up the HKE III course. Please note that the details listed under each module are a guideline only and may be subject to change.

Integration & Application in HKE 301 and 302 (J.Davy & Teaching Assistant)

In Integration and Application 3, the focus will be on consolidating the content knowledge gained from HKE 1 and HKE 2 and apply it to the theoretical frameworks and methods used in both Human Factors and Ergonomics (HFE) and Sports Science (SS). Thus, the main focus of 301 is to introduce students to the fundamental principles of HFE and SS wherein, through the application of systems thinking, students will gain insights into how

to appreciate and map the factors, at multiple levels of different systems, that affect human well-being and performance. The I&A 302 module focusses on demonstrating the transferability of the content knowledge (about the human) across these two disciplines (HFE and SS). The theoretical knowledge will be grounded in relevant work and sporting examples and applications, where students will get the opportunity to understand humans in context and analyse different case studies to gain an appreciation for the web of interconnected factors that affect human well being and performance.

Cognitive Domain in HKE 301 (S. Zschoernack)

This module integrates the functional aspects of force production, sensory and cognitive control as well as metabolic support to a holistic concept of human motor performance. It aims to deliver a fundamental description of human performance for all types of human actions, in sports as well as in work life.

- Types of movements and movement classification
- Composition of complex movements and reaction behaviour
- Organisation of the motor system
- Generation of movement pattern
- Sensory and autonomous movement control
- Learning and training of complex movements
- Movement production with motor programs
- Principles of motor control and movement accuracy

Physiological Domain in HKE 301 (C. Christie)

This module on exercise physiology will focus on the concept of energy expenditure, including how it is measured and typical energy cost values during different activities. Physiological responses to activities of varying intensities and durations will be discussed, as well as substrate utilisation and the concept of fatigue. The energy balance equation will be introduced.

Physiological Domain in HKE 302 (Teaching Assistant)

This module provides an overview of the endocrine system and how it influences certain key functions and processes in the body alongside other human systems. The module will allow students to integrate and better understand the structure and functions of the endocrine system, with a specific focus on endocrinology related to the sleep-wake cycle, specifically referred to as Chronobiology. Examples of how chronobiology influences human performance, in working, sporting and everyday contexts, will be included as a means of showing the application of such knowledge.

Biophysical Domain in HKE 302 (M. Mattison & A. Todd)

The biophysical domain continues the study of musculoskeletal anatomy by concentrating on the trunk, particularly the vertebral column and trunk, and extends to the movement capabilities under 'normal' conditions and during selected injuries / disorders. The biomechanical component of the biophysical domain introduces students to more advanced concepts relating to the biomechanical, anatomical and anthropometric characteristics of human movement. Firstly, the course provides students with an overview of the biomechanical analysis of the kinematic and kinetic aspects of spinal movement. This includes aspects such as biomechanical logic, revisiting the concept of load tolerance

and the dynamic nature of the forces involved in spinal movement. The course then provides a specific focus on integrating the modern understanding of the biopsychosocial nature of lower back pain and how this integrates with the analysis of forces (compression, shear and torsion) acting at the lower back. Lastly, the course illustrates the impact of this understanding on the implementation of biomechanics within the workplace to ensure the effective design of ergonomics programmes that consider not just biomechanical factors, but how these interact with individual, organisational and social factors.

Cognitive Domain (Human Error) in HKE 302 (A. Todd)

This module acknowledges the importance of understanding human reliability and error and how they relate to system performance, regardless of context. The course will provide insights into the basic concepts underpinning human reliability and error, including how we categorise reliability and error and performance shaping factors. Furthermore, the module will unpack methods and models for analysing human reliability and human error, including, but not limited to, THERP, GEMS, CREAM, etc. By the end of the course, students will have a sound understanding of the multiplicity of human reliability and error and the practical implications that this has.

4.5 Prescribed books for HKE III

Bridger, R.S. (2008). *Introduction to Ergonomics* (3rd ed., or earlier). London: Taylor & Francis. (ISBN 9780849373060).

Hall, S.B. (2014). *Basic Biomechanics* (7th ed. or earlier). Boston: McGraw-Hill International. (ISBN 9780073522760).

McArdle, W.D., Katch, F.I. & Katch, V.L. (2014). *Exercise Physiology: Energy, Nutrition and Human Performance*. (8th ed., or any earlier edition). Philadelphia: Lea & Febiger. (ISBN 9781451193831).

Tortora, G.J., & Derrickson, B.H. (2011). *Principles of Anatomy & Physiology* (13th ed. or earlier). New York: Wiley & Sons. (ISBN: 978 0470929186).

(Please note: the more recent editions have two volumes)

5 Further Book Suggestions for HKE

	HKE I	HKE II	HKE III
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
Bridger, R.S. (2008). <i>Introduction to Ergonomics</i> (3rd ed., or earlier). London: Taylor & Francis. (ISBN 978-0849373060).		X	X
Baumgartner & Jackson (2014). <i>Measurement for evaluation in physical education and exercise science</i> (7 th or earlier edition). Boston: McGraw-Hill. (ISBN 978-0321935168)	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
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
Helander, M. (2006). <i>A Guide to Human Factors and Ergonomics</i> (2nd ed.). Boca Raton: CRC Press. (ISBN: 978-0415282482)		X	X
Noakes, T. (2002). <i>Lore of Running</i> . (4th ed. or earlier). Cape Town: Oxford University Press Southern Africa.			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 rd 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
Schmidt, R.A., & Wrisberg, C.A. (2000). <i>Motor learning and performance</i> . (2 nd edition or later). Champaign: 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
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

6 Basic Format Guide

Preface: This format guide describes some general formal rules of scientific writing and is, in this form, sufficient for undergraduate laboratory or project reports etc.

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.

6.1 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. 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. Do not hide behind jargon - if you use a technical term new to you include a brief explanation.

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

- 1) Each pronoun should agree with their antecedent.
- 2) Just between you and I, case is important.
- 3) A preposition is a poor word to end a sentence with.
- 4) Verbs has to agree with their subjects.
- 5) Don't use no double negatives.
- 6) A writer mustn't shift the readers point of view
- 7) When dangling, don't use participles.
- 8) Join clauses good, like a conjunction should.
- 9) 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.
- 10) About sentence fragments.

6.2 Structure of scientific papers and assignments

Scientific papers and assignments take many forms. They can be short or long, empirical (when data are gathered) or literature research, and they can be structured or unstructured. The following will help you prepare your report to suit these various formats.

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 7.3.1), and should you employ references, use the prescribed format (see section 7.3.5). 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.

6.2.1 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 7.3.1) and all references should follow the prescribed format (see section 7.3.5).

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

6.2.2 Short Reports of Empirical Data Collection

Laboratory or experimental project reports should contain the following information, in this order:

Title Page

See section 7.3.1.

Purpose/Introduction

Briefly spell out why you did the project (what were you trying to discover; what was the research question), introducing the reader to the topic addressed.

Review of Literature

A critical and logically sequenced discussion of directly and indirectly **related**

topics.

Often you will need to refer to someone else's work to justify something you are saying (see section 7.3.5 on referencing).

Methods

Details how data collection was conducted (in case of assignments only if it was not specified in an assignment, or if it differed from that specified in the assignment).

Specify equipment used and data collected.

Results

Present all results in summary form (or other appropriate statistics) as Tables or Figures (see section 7.3.3) and written summaries in order to make a results section more meaningful. In this section the results are only ***described, not discussed!***

Discussion

Use this section to discuss the results found as well as to relate the results to reviewed literature.

This section of a report is probably the most important. It is here that one discusses the results obtained i.e. give possible reasons for one's findings substantiated by findings from the relevant literature.

In laboratory exercises there may be a "COMMENTARY" in which you are asked certain questions about what you found. These questions should be addressed under this heading, but should not be dealt with in merely a question/answer form.

The questions are there to guide your thinking.

Conclusions

Draw conclusions based on the results found.

6.3 General formats

Please note that this is only a general recommendation. Changes might be required depending on the subject, the type of report, or as required by the lecturer.

6.3.1 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)

<p>TITLE OF PAPER</p> <p>BY</p> <p>AUTHOR'S NAME (or several authors if a group assignment)</p> <p>PHYSIOLOGY ESSAY / ERGONOMICS LABORATORY WRITE-UP [print only the appropriate module and type of assignment]</p> <p>Submitted in partial fulfilment of the requirements for the Course Human Kinetics and Ergonomics [insert appropriate course, e.g. 101, 302 etc.]</p> <p>Department of Human Kinetics and Ergonomics Rhodes University, 2021 Makhanda/Grahamstown, South Africa</p>

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

6.3.2 Text format

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

6.3.3 Figures, tables and equations

All figures, tables and equation need to be referred to in the main text.

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

figure. An example is provided in Figure 2.

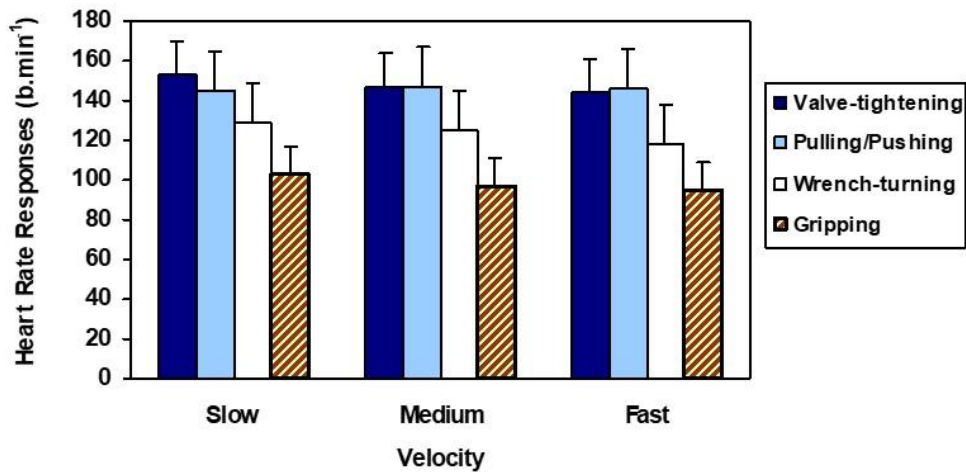


Figure 2: Mean heart rate responses.

Each **table** should have a numbered caption at the top that tells concisely just what it contains. Example:

Table XI: Laboratory Test (LT) responses at Slow Isokinetic Speed (30°·s⁻¹): comparisons across joints tested. Means (±SD). *

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

* None of these tests involved gravity-correction

As an option, Roman or Arabic numerals may be used for tables, as long as the numbering applied is consistent throughout the paper.

Equations are numbered in parenthesis right to the equation and referenced accordingly.

Example:

$$A + B = C \tag{eq. 1}$$

Equations do not have a caption or heading.

6.3.4 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.

6.3.5 Referencing

The HKE Department complies with the APA standard of referencing.

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

Table 12: 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)

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 or in order of importance.

Some examples:

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

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

"One experiment conducted by Gordon *et al.* (1983)"

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

Note that *et al.*, must be in italics with only one full stop (after "al.").

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 2nd 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 ed.). Boca Raton: CRC press.