



Stellenbosch

UNIVERSITY
IYUNIVESITHI
UNIVERSITEIT

SCIENCE

EYENZULULWAZI NGEZENDALO

NATUURWETENSAPPE

Biology 154 – Functional Biology

Short description of the module

This module includes the functional biology of plants and animals, as well as an introduction to Biotechnology. It serves as a basis for later programmes in Biological Sciences and therefore includes a variety of topics that are relevant to or essential for a present-day study in any biological discipline. The following topics are covered:

- Plant physiology will cover the integration of plant form (plant anatomy and morphology) and function (photosynthesis; water relations; transport in plants; plant mineral nutrition; growth and development).
- The organization and functioning of the animal body. This includes processes such as movement, digestion, circulation, and respiration.
- The general principles of Biotechnology.

Biologie 154 – Funksionele Biologie

Kort beskrywing van die module

Hierdie module handel oor die funksionele biologie van plante en diere, asook 'n inleiding tot Bioteegnologie. Dit dien as 'n basis vir latere programme in die Biologiese Wetenskappe en sluit daarom 'n verskeidenheid aspekte in wat relevant tot, of essensieel is vir hedendaagse studie in die biologiese dissipline. Die volgende temas word behandel:

- Plantfisiologie sal die integrasie van plantvorm (plantanatomie en -morfologie) en -funksie (fotosintese; waterverhoudings; vervoer in plante; plant minerale voeding; groei en ontwikkeling) dek.
- Die organisasie en funksionering van die diere liggaam. Hieronder val prosesse soos beweging, spysvertering, sirkulasie en respirasie.
- Die algemene beginsels van Bioteegnologie.

Module summary

Name	Biology 154 – Functional Biology
Duration	2 nd semester
Type	
Academic commitment*	16 credits = 160 notional hours 12 hours per week for lectures, tutorials/practical's and studying.
Scheduled learning opportunities	3 lectures (L) per week 1 tutorial or practical per week
Assessment option	Option 2: A1 (T1 and T2) and A2 each cover different parts of the syllabus; A3 covers the entire syllabus.
Language option	Option 1: lectures, practicals and tutorials are in English or Afrikaans (separate classes).
Mode of offering	Face-2-Face
Corequisites / Prerequisites / Pass prerequisites**	C Biology 124

**Notional hours are the learning time that it would take an average learner to meet the outcomes of the module.*

***The onus is on the students to ensure that they meet the prerequisites of the module.*

Module-oorsig

Naam	Biologie 154 – Funksionele Biologie
Duur	2de semester
Tipe	
Akademiese verbintenis*	16 krediete – 160 veronderstelde leerure 12 ure per week vir lesings, tutoriale/praktika en studeer.
Geskeduleerde leergeleenthede	3 lesings (L) per week 1 tutoriaal of prakties per week
Assesseringsopsie	Opsie 2: A1 (T1 en T2) en A2 elk dek verskillende dele van die sillabus. A3 dek die hele sillabus.
Taalopsie	Opsie 1: lesings, praktika en tutoriale is in Engels of Afrikaans (aparte klasse).
Modus van aanbieding	In persoon (face-to-face)
Nowe vereistes / Voorvereistes / Slaagvoorvereistes**	C Biologie 124

**Veronderstelde leerure is die tyd wat die gemiddelde leerder aan die module sal moet spandeer om aan die uitkomst van die module te voldoen.*

***Die onus rus op die studente om te verseker dat hulle aan die voorvereistes van die module voldoen.*

Outcomes

At the end of the module, you should have a good understanding of the following:

- Plant form (plant anatomy and morphology) and function (photosynthesis; water relations; transport in plants; plant mineral nutrition; growth and development).
- The organization and functioning of the animal body: the systems of movement, digestion, circulation and respiration.
- The general principles of Biotechnology.
- Scientific writing (animal report). No student can pass the module without submitting an animal report.

See the study objectives of each sub-module under 'Syllabus' on SUNLearn.

NB. During f2f laboratory practicals, several samples and systems will be studied. Completion of ALL assessments and attendance of all practicals is compulsory to achieve the outcomes of this module (and thus to pass the module).

Uitkomst

Aan die einde van die module behoort jy 'n goeie begrip van die volgende te hê:

- Plantvorm (plantanatonomie and -morfologie) en -funksie (fotosintese; waterverhoudinge; vervoer in plante; plantmineraalvoeding; groei and ontwikkeling).
- Die organisasie en funksionering van die diere liggaam: die sisteme van beweging, spysvertering, sirkulasie en respirasie.
- Die algemene beginsels van Biotegnologie.
- Wetenskaplike skryfwerk (diereverslag). Geen student kan die module slaag sonder indiening van die diereverslag nie.

Sien die studiedoelwitte van elke submodule onder 'Syllabus' op SUNLearn.

NB. Gedurende f2f laboratoriumpraktika sal verskeie monsters en sisteme bestudeer word. Die voltooi van ALLE assesserings en die bywoning van alle praktika is VERPLIGTEND om die uitkomst van die module te bereik (en sodoende die module te slaag).

Scheduled learning opportunities

The official timetable indicating all scheduled learning opportunities and their allocated venues can be accessed via [My.SUN](#). For this module students will be subdivided into practical and tutorial groups. These schedules are available on the module page on SUNLearn.

Groups	Time	Venue
Group 1.1 Afrikaans	Monday 10:00 Tuesday 08:00 Friday 11:00	All lectures in Merensky 3002
Group 1.2 English	Monday 10:00 Tuesday 08:00 Friday 11:00	All lectures in Schumann Annex 1027
Group 2.1 Afrikaans	Monday 11:00 Wednesday 08:00 Friday 09:00	All lectures in A203. JC Smuts Building
Group 2.2 English	Monday 11:00 Wednesday 08:00 Friday 09:00	All lectures in Krotoa 1001

Lectures

The Bio 154 module will be offered on campus during face-face lectures. See the lecture schedules on the last pages of this document.

Geskeduleerde leergeleenthede

Die amptelike rooster wat al die geskeduleerde leergeleenthede en die toegewysde lokale aandui, is beskikbaar by [My.SUN](#). Vir hierdie module sal studente in praktiese- en tutoriaal-groepe ingedeel word. Hierdie skedules is beskikbaar op die moduleblad op SUNLearn.

Groepe	Tyd	Lokaal
Groep 1.1 Afrikaans	Maandag 10:00 Dinsdag 08:00 Vrydag 11:00	Alle lesings in Merensky 3002
Groep 1.2 Engels	Maandag 10:00 Dinsdag 08:00 Vrydag 11:00	Alle lesings in Schumann Annex 1027
Groep 2.1 Afrikaans	Maandag 11:00 Woensdag 08:00 Vrydag 09:00	Alle lesings in A203. JC Smuts Gebou
Groep 2.2 Engels	Maandag 11:00 Woensdag 08:00 Vrydag 09:00	Alle lesings in Krotoa 1001

Lesings

Die Bio 154 module sal op kampus aangebied word tydens in-persoon lesings. Sien die lesingskediule op die laaste bladsye van hierdie dokument.

Practicals

WEEK	DATES	SUBMODULE
1	24/25/26/27 July	No practicals
2	31 July/01/02/03 Aug	Form and function of Plants
3	07/08/09/10 Aug	No practicals
4	14/15/16/17 Aug	Form and function of Plants
5	21/22/23/24 Aug	Form and function of Plants
6	28/29/30/31 Aug	Form and function of Animals
7	04/05/06/07 Sept	Form and function of Animals
Recess		
8	18/19/20/21 Sept	Form and function of Animals
9	25/26/27/28 Sept	No practicals
10	02/03/04/05 Oct	Form and function of Animals
11	09/10/11/12 Oct	Biotechnology
12	16/17/18/19 Oct	Biotechnology
13	23/24/25/26 Oct	No practicals

Praktika

WEEK	DATUM	SUBMODULE
1	24/25/26/27 Julie	Geen praktika
2	31 Julie/01/02/03 Aug	Vorm en funksie van Plante
3	07/08/09/10 Aug	Geen praktika
4	14/15/16/17 Aug	Vorm en funksie van Plante
5	21/22/23/24 Aug	Vorm en funksie van Plante
6.	28/29/30/31 Aug	Vorm en funksie van Diere
7.	04/05/06/07 Sep	Vorm en funksie van Diere
Reses		
8.	18/19/20/21 Sep	Vorm en funksie van Diere
9.	25/26/27/28 Sep	Geen praktika
10.	02/03/04/05 Okt	Vorm en funksie van Diere
11.	09/10/11/12 Okt	Biotegnologie
12.	16/17/18/19 Okt	Biotegnologie
13.	23/24/25/26 Okt	Geen praktika

Study material

Prescribed textbook: Russell, Hertz, McMillan, Biology: The Dynamic Science (5th edition). Cengage Publishers. International Edition.

SUNLearn is the official learning management platform of Stellenbosch University. Each module has a dedicated page on this platform which can be accessed via this link: <https://learn.sun.ac.za/>

Studiemateriaal

Voorgeskrewe Handboek: Russell, Hertz, McMillan, Biology: The Dynamic Science (5th edition). Cengage Publishers. International Edition.

SUNLearn is die amptelike leerbestuursplatform van die Universiteit Stellenbosch. Elke module het 'n toegewysde blad op hierdie platform met toegang via hierdie skakel: <https://learn.sun.ac.za/>

Lecturers

Submodule		Department	Lecturers
1	Form and function of Plants	Botany and Zoology Natural Science building	Prof Nox Makunga (convener) makunga@sun.ac.za Dr Stian Griebenow stiang@sun.ac.za
2	Form and function of Animals	Botany and Zoology Natural Science building	Prof Theresa Wossler (convener) wossler@sun.ac.za Dr Alex Flemming aff@sun.ac.za
3	Biotechnology	Genetics JC Smuts Building	Dr Paul Hills (convener) phills@sun.ac.za Dr Christell van der Vyver cvdv@sun.ac.za

Dosente

Submodule		Departement	Dosente
1	Vorm en funksie van Plante	Plant- en Dierkunde Natuurwetenskappe Gebou	Prof Nox Makunga (sameroeper) makunga@sun.ac.za Dr Stian Griebenow stiang@sun.ac.za
2	Vorm en funksie van Diere	Plant- en Dierkunde Natuurwetenskappe Gebou	Prof Theresa Wossler (sameroeper) wossler@sun.ac.za Dr Alex Flemming aff@sun.ac.za
3	Biotegnologie	Genetika JC Smuts Gebou	Dr Paul Hills (sameroeper) phills@sun.ac.za Dr Christell van der Vyver cvdv@sun.ac.za

Assessment

The dates for all centrally scheduled assessments are published on [My.SUN](#). This module follows assessment option 2. Please see the [Faculty of Science's assessment guidelines](#) for more details.

The module is assessed through three scheduled invigilated, written assessments (on campus): the A1T1, the A1T2 assessment and the A2 assessment. These three assessments contribute 80% to the final mark. The remaining 20%, known as the 'practical mark', comprises the animal report and Biotechnology practical assessment/s.

The A3 assessment will serve as a sickness test for any (only one) of the A1T1, A1T2 or A2 assessments missed through the semester with an appropriate excuse. Thus, if a student wrote all three assessments (the A1T1, A1T2 and A2) through the semester and achieved a final mark of 50% and higher, you pass the module and do not have to write the A3 assessment (it is optional then). The A3 covers the entire syllabus.

The A3 assessment will also serve as an additional assessment opportunity for:

- students who have not passed the module after the A2 and whose final mark is between 40 and 49%. These students can still pass the module after the A3, but their mark will be capped at 50%.
- any student who have already passed the module after the A2, but who wants to improve their final mark. In such a case you will have to apply to write the A3.

In both these cases, the lowest test mark will be replaced by the A3 mark.

Students MUST complete ALL compulsory assessments to pass the module – these assessments are thus mandatory!

Assesserings

Die datums van alle sentraal geskeduleerde assesserings word op [My.SUN](#) gepubliseer. Hierdie module volg assesseringsopsie 2. Raadpleeg die [Fakulteit Natuurwetenskappe se assesseringsriglyne](#) vir meer besonderhede.

Die module word geassesseer deur middel van drie geskrewe geskeduleerde assesserings onder toesig (op kampus): die A1T1, die A1T2 assessering en die A2 assessering. Hierdie drie assesserings dra 80% by tot die finale punt. Die oorblywende 20%, ook bekend as die 'praktiese punt', bestaan uit die diereverslag and die Biotechnologie praktiese assessering/s.

Die A3 assessering dien as 'n siektetoets vir enige (slegs een) van die A1T1, A1T2 of A2 assesserings gemis deur die loop van die semester met geldige redes. Dus, indien 'n student al drie die assesserings (A1T1, A1T2 en A2) afgelê het tydens die semester, en 'n finale punt van 50% en hoër behaal het, slaag u die module en skryf u nie die A3 assessering nie (dit is opsioneel in hierdie geval). Die A3 dek die totale sillabus.

Die A3 assessering sal ook dien as 'n addisionele assesserings-geleentheid vir:

- studente wie nie die module geslaag het na die A2 nie, en wie se finale punt tussen 40 en 49% val. Hierdie studente kan steeds die module slaag na die A3, maar hulle punte sal beperk word tot 50%.
- enige student wat reeds die module geslaag het na die A2 maar hulle finale punt wil verbeter. In hierdie geval sal jy moet aansoek doen om die A3 te skryf.

In beide hierdie gevalle sal die laagste toetspunt vervang word met die A3 punt.

Studente MOET ALLE verpligte assesserings aflê om die module te slaag – sulke assesserings is dus verpligtend!

Method of assessment	Description and Content	#	Allocated marks	Criteria and Status	Dates
Practical assessments	Animal report Biotech online assignment/s		20% of final mark	Compulsory assessments	As communicated
A1T1 assessment	Topic: Form and function of plants. Scheduled invigilated evening assessment on campus.	1	Form and function of plants: 80 marks (including practical questions)	Compulsory assessment	6 Sept 17:30
A1T2 assessment	Topic: Form and function of animals. Scheduled invigilated evening assessment on campus.	1	Form and function of animals: 80 marks	Compulsory assessment	5 Oct 17:30
A2 assessment	Topic: Form and function of animals and Biotechnology. Scheduled invigilated assessment on campus.	1	Form and function of animals: 15/80 marks Biotechnology: 65/80 marks	Compulsory assessment	14 Nov 14:00
A3 assessment	Sickness Test and additional assessment opportunity for all three submodules. Scheduled invigilated assessment on campus.	1	This assessment covers the entire syllabus: Form and function of plants: 28/80 marks Form and function of animals: 32/80 marks Biotechnology: 20/80 marks	Optional Additional assessment opportunity for most students	7 Dec 14:00

Please see the assessments and promotion chapter in the [SU Calendar Part 1 \(General\)](#) for institutional rules regarding assessments.

Metode van assessering	Beskrywing en Inhoud	#	Punte toegeken	Kriteria en Status	Datums
Praktiese assesserings	Diereverslag Biotegnologie aanlyn assessering/s		20% van die finale punt	Verpligte assesserings	Soos gekommunikeer
A1T1	Onderwerp: Vorm and funksie van plante. Geskeduleerde aand-assessering op kampus onder toesig.	1	Vorm and Funksie van Plante: 80 punte, insluitend praktiese vrae	Verpligte assessering	06 Sep 17:30
A1T2 assessering	Onderwerp: Vorm and funksie van diere. Geskeduleerde aand-assessering op kampus onder toesig.	1	Onderwerp: Vorm and funksie van diere. 80 punte	Verpligte assessering	05 Okt 17:30
A2 assessering	Onderwerp: Vorm and funksie van diere en Biotegnologie. Geskeduleerde assessering op kampus onder toesig.	1	Onderwerp: Vorm and funksie van diere. 15/80 punte Biotegnologie: 65/80 punte	Verpligte assessering	14 Nov 14:00
A3 assessering	Siektetoets en addisionele assesserings-geleentheid vir al drie submodules. Geskeduleerde assessering op kampus onder toesig.	1	Hierdie assessering dek die totale sillabus: Vorm and Funksie van Plante: 28/80 punte Vorm and funksie van diere: 32/80 punte Biotegnologie: 20/80 punte	Opsioneel: Addisionele assesserings-geleentheid vir die meeste studente	07 Des 14:00

Raadpleeg die hoofstuk oor assessering en promovering in [Deel 1 \(Algemeen\) van die US Jaarboek](#) vir institusionele reëls oor assesserings.

Calculation of final marks

The average of the three assessments (A1T1, A1T2 and A2) contribute 80% to the final mark. The practical mark counts 20% toward the final mark. If the A3 is used as an additional assessment opportunity, the lowest mark of the A1T1, A1T2 or A2 will be replaced by the A3 mark.

You therefore pass the module if:

- Your final mark is 50% or more, AND
- You submitted the animal report.

Berekening van finale punte

Die gemiddeld van die drie assesserings (A1T1, A1T2 en A2) sal 80% van die finale punt uitmaak. Die praktiese punt tel 20% van die finale punt. Indien die A3 gebruik word as 'n addisionele assesseringsgeleentheid, sal die laagste punt van die A1T1, A1T2 of A2 vervang word met die A3 punt.

U slaag dus die module indien:

- U finale punt 50% en hoër is, EN
- U die Diereverslag ingedien het.

Absenteeism (Missed opportunities)

Please see the section 11 of the [SU Calendar Part 1 \(General\)](#) for the institutional rules regarding absence from classes and or tests.

Take note that for any absence from the university *for more than one* teaching, learning or assessment opportunity, for whatever reason, students need to apply for leave of absence from the Registrar's office.

If you are absent for exactly one teaching, learning or assessment opportunity you need to contact **Mrs Nel** (acnel@sun.ac.za) immediately and provide the appropriate evidence as stipulated in the Calendar.

Afwesigheid (die misloop van 'n leergeleentheid)

Raadpleeg asseblief afdeling 11 in [Deel 1 \(Algemeen\) van die US Jaarboek](#) vir die institusionele reëls met betrekking tot afwesigheid van klasse en of toetse.

Neem kennis dat studente by die Registrateur moet aansoek doen vir verlof tot afwesigheid, vir watter rede ook al, van *meer as een* onderrig-, leer-, of assesseringsgeleentheid,

Indien jy afwesig is van presies een onderrig-, leer-, of assesseringsgeleentheid, moet jy onmiddellik vir **Mev Nel** (acnel@sun.ac.za) kontak en die toepaslike bewys van rede tot afwesigheid inhandig, soos uiteengesit in die Jaarboek.

Communication

The **announcement forum on the SUNLearn module page** is the only official platform that will be used to make announcements relevant to this module. Please check this regularly.

For communication with individual students, lecturers, support staff and peer-to-peer facilitators will only use students' official SUN email addresses. Please indicate in the Subject line to which module you are referring to.

Students are also requested to use their official **SUN email addresses** for all academic related communication to: **Mrs Nel at** (acnel@sun.ac.za).

Kommunikasie

Die **aankondigingsforum op die SUNLearn moduleblad** is die enigste amptelike platform wat gebruik sal word om aankondigings, wat relevant is vir hierdie module, te maak. Kontroleer dit asseblief gereeld.

Vir kommunikasie met individuele studente, sal dosente, steunpersoneel en eweknie-fasiliteerders slegs studente se amptelike SUN-e-posadresse gebruik. Dui asb in die "Subject" van die epos na watter module u verwys.

Studente word ook versoek om hul amptelike **SUN-e-posadresse** te gebruik vir alle akademiese verwante kommunikasie te gebruik aan: **Mev Nel by** (acnel@sun.ac.za).

Addressing challenges

For any complaints, the first port of call is the class representative, Mrs Nel (acnel@sun.ac.za) or the lecturer. If not satisfactorily resolved, it can be escalated to the Head of Department or [Coordinator: Academic and Student Affairs](#).

Hantering van uitdagings

Vir enige klagtes, is die klasvertegenwoordiger, Mev Nel (acnel@sun.ac.za) of dosent die eerste plek om hulp te soek. Indien die probleem nie bevredigend opgelos word nie, kan dit na die Departementshoof of [Koördineerder: Akademiese- en Studentesake](#) verwys word.

Academic Misconduct

Academic misconduct includes plagiarism, collusion, cheating and fabrication as stipulated in the [Disciplinary code for students of Stellenbosch University](#). The [SU Policy on Plagiarism](#) defines plagiarism as: "The use of the ideas or material of others [including AI generative tools, such as ChatGPT or Bing] without [appropriate] acknowledgement, or the re-use of one's own previously evaluated or published material without acknowledgement (self-plagiarism)." Such acknowledgement would include referencing the source of previously expressed ideas or published materials, or acknowledging the contribution of e.g. the AI tool, as stipulated for a specific assessment or assignment.

Plagiarism is regarded as a serious offence. More serious cases are handled as set out in the [Stellenbosch University procedure for the investigation and management of allegations of plagiarism document](#). Less serious cases are dealt with by the module coordinator and respective department as set out by the procedures of the faculty.

Repeaters

Students who have to repeat this module will be granted practical exemption if a practical mark of 50% and above was obtained in the previous year of studying this module. If not, then all the practical components and assessments will have to be repeated to pass the module.

However, you **have to apply for practical exemption** with Mrs Nel (acnel@sun.ac.za) **before** the 11th of August.

Akademiese Wangedrag

Akademiese wangedrag sluit plagiaat, samespanning, bedrog en versinsel in, soos bepaal in die [Dissiplinêre kode vir studente van die Universiteit Stellenbosch](#). Die " [SU Policy on Plagiarism](#)" definieer plagiaat as die gebruik van die idees of materiaal van ander [insluitend "AI" produserende hulpmiddels, soos ChatGPT of Bing] sonder toepaslike erkenning daarvan, of die hergebruik van 'n persoon se eie voorheen-geassesseerde of gepubliseerde materiaal sonder erkenning (self-plagiaat). Toepaslike erkenning sal verwysings insluit na die bron van voorheen uitgedrukte idees of gepubliseerde materiaal, of erkenning van bv. die "AI" hulpmiddel, soos gestipuleer vir 'n spesifieke assessering of opdrag.

Plagiaat word as 'n ernstige oortreding beskou. Ernstiger gevalle word hanteer soos uiteengesit in die [Universiteit Stellenbosch se dokument oor die prosedure vir die ondersoek en bestuur van bewerings van plagiaat](#). Minder ernstige gevalle word deur die modulekoördineerder en betrokke departement hanteer soos uiteengesit in die fakulteitsprosedures.

Herhalers

Studente wat hierdie module herhaal sal vrystelling van prakties verleen word indien 'n praktiese punt van 50% en hoër behaal was in die vorige jaar wat die module geneem was. Indien nie, sal die praktiese komponente en assesserings herhaal moet word om die module te slaag.

U moet egter **aansoek doen om praktiese vrystelling** by Mev Nel (acnel@sun.ac.za) **voor** die 11de Augustus.

2023 BIOLOGY 154: Lecture Calendar

WEEK	LECTURE	DATE AND TIME	Sub-Module
1	1	Mon 24 July (10:00 and 12:00)	Form/function of plants
	2	Tue 25 July (08:00) and Wed 26 July (08:00)	Form/function of plants
	3	Fri 28 July (09:00 and 11:00)	Form/function of plants
2	4	Mon 31 July. (10:00 and 12:00)	Form/function of plants
	5	Tue 01 Aug. (08:00) and Wed 02 Aug (08:00)	Form/function of plants
	6	Fri 04 Aug (09:00 and 11:00)	Form/function of plants
3	7	Mon 07 Aug. (10:00 and 12:00)	Form/function of plants
		Tuesday 08 Aug and Wed 09 Aug	No lectures
	8	Fri 11 Aug (09:00 and 11:00)	Form/function of plants
4	9	Mon 14 Aug (10:00 and 12:00)	Form/function of plants
	10	Tue 15 Aug (08:00) and Wed 16 Aug (08:00)	Form/function of plants
	11	Fri 18 Aug (09:00 and 10:00)	Form/function of plants
5	12	Mon 21 Aug (10:00 and 12:00)	Form/function of plants
	13	Tue 22 Aug (08:00) and Wed 23 Aug (08:00)	Form/function of plants
	14	Fri 25 Aug (09:00 and 11:00)	Form/function of animals
6	15	Mon 28 Aug (10:00 and 12:00)	Form/function of animals
	16	Tue 29 Aug (08:00) and Wed 30 Aug (08:00)	Form/function of animals
	17	Fri 01 Sept (09:00 and 11:00)	Form/function of animals
7	18	Mon 04 Sept (10:00 and 12:00)	Form/function of animals
	19	Tue 05 Sept (08:00) and Wed 06 Sept (08:00)	Form/function of animals

2023 BIOLOGIE 154: Lesing Kalender

WEEK	LESING	DATUM EN TYD	Sub-Module
1	1	Ma 24 Julie (10:00 en 12:00)	Vorm/funksie van plante
	2	Di 25 Julie (08:00) en Wo 26 Julie (08:00)	Vorm/funksie van plante
	3	Vry 28 Julie (09:00 en 11:00)	Vorm/funksie van plante
2	4	Ma 31 Julie. (10:00 en 12:00)	Vorm/funksie van plante
	5	Di 01 Aug. (08:00) en Wo 02 Aug (08:00)	Vorm/funksie van plante
	6	Vry 04 Aug (09:00 en 11:00)	Vorm/funksie van plante
3	7	Ma 07 Aug. (10:00 en 12:00)	Vorm/funksie van plante
		Di 08 Aug en Wo 09 Aug	Geen lesings
	8	Vry 11 Aug (09:00 en 11:00)	Vorm/funksie van plante
4	9	Ma 14 Aug (10:00 en 12:00)	Vorm/funksie van plante
	10	Di 15 Aug (08:00) en Wo 16 Aug (08:00)	Vorm/funksie van plante
	11	Vry 18 Aug (09:00 en 10:00)	Vorm/funksie van plante
5	12	Ma 21 Aug (10:00 en 12:00)	Vorm/funksie van plante
	13	Di 22 Aug (08:00) en Wo 23 Aug (08:00)	Vorm/funksie van plante
	14	Vry 25 Aug (09:00 en 11:00)	Vorm/funksie van diere
6	15	Ma 28 Aug (10:00 en 12:00)	Vorm/funksie van diere
	16	Di 29 Aug (08:00) en Wo 30 Aug (08:00)	Vorm/funksie van diere
	17	Vry 01 Sep (09:00 en 11:00)	Vorm/funksie van diere
7	18	Ma 04 Sep (10:00 en 12:00)	Vorm/funksie van diere
	19	Di 05 Sep (08:00) en Wo 06 Sep (08:00)	Vorm/funksie van diere

	20	Fri 08 Sept (09:00 and 11:00)	Form/function of animals		20	Vry 08 Sep (09:00 en 11:00)	Vorm/funksie van diere
		RECESS 11-15 SEPT				RESES 11-15 SEP	
8	21	Mon 18 Sept (10:00 and 12:00)		8	21	Ma 18 Sep (10:00 en 12:00)	Vorm/funksie van diere
	22	Tue 19 Sept (08:00) and Wed 20 Sept (08:00)	Form/function of animals		22	Di 19 Sep (08:00) en Wo 20 Sep (08:00)	Vorm/funksie van diere
	23	Fri 22 Sept (09:00 and 11:00)	Form/function of animals		23	Vry 22 Sep (09:00 en 11:00)	Vorm/funksie van diere
9		Mon 25 Sept	No lectures	9		Ma 25 Sep	Geen lesings
	24	Tue 26 Sept (08:00) and Wed 27 Sept (08:00)	Form/function of animals		24	Di 26 Sep (08:00) en Wo 27 Sep (08:00)	Vorm/funksie van diere
	25	Fri 29 Sept (Monday timetable) (10:00 and 12:00)	Form/function of animals		25	Vry 29 Sep (Maandag rooster) (10:00 en 12:00)	Vorm/funksie van diere
10	26	Mon 02 Oct (10:00 and 12:00)	Form/function of animals	10	26	Ma 02 Okt (10:00 en 12:00)	Vorm/funksie van diere
	27	Wed 04 Oct (09:00 and 10:00)	Form/function of animals		27	Wo 04 Okt (09:00 en 10:00)	Vorm/funksie van diere
	28	Thurs 05 Oct (12:00) and Fri 06 Oct (08:00)	Form/function of animals		28	Do 05 Okt (12:00) en Vry 06 Okt (08:00)	Vorm/funksie van diere
11	29	Mon 09 Oct (08:00 and 11:00)	Biotechnology	11	29	Ma 09 Okt (08:00 en 11:00)	Biotegnologie
	30	Tue 10 Oct (08:00) and Wed 11 Oct (08:00)	Biotechnology		30	Di 10 Okt (08:00) en Wo 11 Okt (08:00)	Biotegnologie
	31	Fri 13 Oct (09:00 and 11:00)	Biotechnology		31	Vry 13 Okt (09:00 en 11:00)	Biotegnologie
12	32	Mon 16 Oct (10:00 and 12:00)	Biotechnology	12	32	Ma 16 Okt (10:00 en 12:00)	Biotegnologie
	33	Tue 17 Oct (08:00) and Wed 18 Oct (08:00)	Biotechnology		33	Di 17 Okt (08:00) en Wo 18 Okt (08:00)	Biotegnologie
	34	Fri 20 Oct (09:00 and 11:00)	Biotechnology		34	Vry 20 Okt (09:00 en 11:00)	Biotegnologie
13	35	Mon 23 Oct (10:00 and 12:00)	Biotechnology	13	35	Ma 23 Okt (10:00 en 12:00)	Biotegnologie
	36	Tue 24 Oct (08:00) and Wed 25 Oct (08:00)	Biotechnology		36	Di 24 Okt (08:00) en Wo 25 Okt (08:00)	Biotegnologie
	37	Fri 27 Oct (09:00 and 11:00)	Biotechnology		37	Vry 27 Okt (09:00 en 11:00)	Biotegnologie