

Biology 154 – Functional Biology 2024

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 2024

Kort beskrywing van die module

Hierdie module handel oor die funksionele biologie van plante en diere, asook 'n inleiding tot Biotegnologie. 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 Biotegnologie.

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: A1E1, A1E2 and A2 each cover different parts of the syllabus; A3 covers the entire syllabus.
Language option	Option 3 a: English with online interpreting in Afrikaans
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: A1E1, A1E2 en A2 dek elk verskillende dele van die sillabus. A3 dek die hele sillabus.
Taalopsie	Opsie 3 a: Engels met aanlyn tolking in Afrikaans
Modus van aanbieding	In persoon
Newevereistes / 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 Bioteegnologie.
- 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	Monday 10:00 Tuesday 08:00 Friday 11:00	All lectures in Merensky 3002
Group 1.2	Monday 10:00 Tuesday 08:00 Friday 11:00	All lectures in Merensky 3002
Group 1.3	Monday 10:00 Tuesday 08:00 Friday 11:00	Mon and Tues Krotoa 1001 Friday MathSci/IndPsych 1005
Group 2.1	Monday 12:00 Wednesday 08:00 Friday 09:00	All lectures in A203. JC Smuts Building
Group 2.2	Monday 12:00 Wednesday 08:00 Friday 09:00	All lectures in A203 JC Smuts Building
Group 2.3	Monday 12:00 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	Maandag 10:00 Dinsdag 08:00 Vrydag 11:00	Alle lesings in Merensky 3002
Groep 1.2	Maandag 10:00 Dinsdag 08:00 Vrydag 11:00	Alle lesings in Merensky 3002
Groep 1.3	Maandag 10:00 Dinsdag 08:00 Vrydag 11:00	Ma en Di Krotoa 1001 Vry WiskWet/Bedryfs 1005
Groep 2.1	Maandag 12:00 Woensdag 08:00 Vrydag 09:00	Alle lesings in A203. JC Smuts Gebou
Groep 2.2	Maandag 12:00 Woensdag 08:00 Vrydag 09:00	Alle lesings in A203 JC Smuts Gebou
Groep 2.2	Maandag 12:00 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

Check each week which of the following is scheduled (if any):

- A laboratory practical, or
- An online practical, or
- A tutorial session

WEEK	DATES	SUBMODULE
1	22/23/24/25 July	No practicals
2	29/30/31 July/01 Aug	Form and function of Plants: Laboratory practical
3	05/06/07/08 Aug	No practicals (05 Friday timetable)
4	12/13/14/15 Aug	Form and function of Plants: Laboratory practical
5	19/20/21/22 Aug	Form and function of Plants: Online practical
6	26/27/28/29 Aug	Form and function of Animals: Laboratory practical
7	02/03/04/05 Sept	Form and function of Animals: Laboratory practical
Recess		
8	16/17/18/19 Sept	Form and function of Animals; Tutorial session (venues to be announced)
9	23/24/25/26 Sept	No practicals – practical time is designated for compiling scientific report
10	30 Sep/01/02/03 Oct	Form and function of Animals: Online practical
11	07/08/09/10 Oct	Biotechnology: Online practical
12	14/15/16/17 Oct	Biotechnology: Online practical
13	21/22/23/24 Oct	No practicals

Praktika

Kontroleer elke week watter van die volgende is geskeduleer (indien enige):

- 'n Laboratorium prakties, of
- 'n Aanlyn prakties, of
- 'n Tutoriaal sessie

WEEK	DATUM	SUBMODULE
1	22/23/24/25 Julie	Geen praktika
2	29/30/31 Julie/01 Aug	Vorm en funksie van Plante: Laboratorium prakties
3	05/06/07/08 Aug	Geen praktika (05 Vrydag rooster)
4	12/13/14/15 Aug	Vorm en funksie van Plante: Laboratorium prakties
5	19/20/21/22 Aug	Vorm en funksie van Plante: Aanlyn prakties
6.	26/27/28/29 Aug	Vorm en funksie van Diere: Laboratorium prakties
7.	02/03/04/05 Sep	Vorm en funksie van Diere: Laboratorium prakties
Reses		
8.	16/17/18/19 Sep	Vorm en funksie van Diere: Tutoriaal sessie (lokaal sal aangekondig word)
9.	23/24/25/26 Sep	Geen lab praktika – prakties se tyd word toegestaan vir die saamstel van wetenskaplike verslag
10.	30Sep/01/02/03 Okt	Vorm en funksie van Diere: Aanlyn prakties
11.	07/08/09/10 Okt	Biotegnologie: Aanlyn prakties
12.	14/15/16/17 Okt	Biotegnologie: Aanlyn prakties
13.	21/22/23/24 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 I Moroenyane imoroenyane@sun.ac.za
2 Form and function of Animals	Botany and Zoology Natural Science building	Prof Theresa Wossler (convener) wossler@sun.ac.za Ad Hoc lecturer
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 I Moroenyane imoroenyane@sun.ac.za
2 Vorm en funksie van Diere	Plant- en Dierkunde Natuurwetenskappe Gebou	Prof Theresa Wossler (sameroeper) wossler@sun.ac.za Ad Hoc Lektor
3 Bioteegnologie	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, online assessments (on campus) covering the subject matter of the sub-modules as set out in the table on the next page:

- **A1E1**
- **A1E2**
- **A2**

These three assessments contribute **80%** to the final mark. The remaining **20%**, known as the 'practical mark', comprises the scientific (animal) report and Biotechnology practical assessment/s.

If a student wrote all three assessments (the A1E1, A1E2 and A2) and achieved a final mark of 50% and higher, the student passes the module, and no further assessment is needed.

The **A3** assessment serves as a sickness test for any one of the A1E1, A1E2 or A2 assessments missed with a legitimate excuse (and documentation). The A3 therefore covers the **entire syllabus** of the semester.

The **A3** assessment also serves 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 has already passed the module after the A2, but who wants to improve their final mark. In this case, the student needs to notify Mrs Nel (acnel@sun.ac.za) that they wish to write the A3 assessment.

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 geskeduleerde aanlyn-assesserings onder toesig (op kampus) oor die vakinhoud van submodules soos uiteen gesit in die table op die volgende bladsy::

- **A1E1**
- **A1E2**
- **A2**

Hierdie drie assesserings dra **80%** by tot die finale punt. Die oorblywende 20%, ook bekend as die 'praktiese punt', bestaan uit die wetenskaplike (diere) verslag and die Bioteegnologie praktiese assessering/s.

Indien 'n student al drie die assesserings (A1E1, A1E2 en A2) afgelê het en 'n finale punt van 50% en hoër behaal het, slaag die student die module en word geen verdere assessering vereis nie.

Die **A3** assessering dien as 'n siektetoets vir enige een van die A1E1, A1E2 of A2 assesserings gemis deur die loop van die semester met geldige redes (en dokumentasie). Die A3 dek daarom 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.

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!

Method of assessment	Description and Content	#	Allocated marks	Criteria and Status	Dates
Practical assessments	Plants online assessments (6/20) Animal report (10/20) Biotech online assessments (4/20)		20% of final mark	Compulsory assessments	As communicated
A1E1 assessment	Topic: Form and function of plants. Scheduled invigilated evening assessment on campus.	1	Form and function of plants: 80 marks (of 235)	Compulsory assessment	30 August 17:30
A1E2 assessment	Topic: Form and function of animals. Scheduled invigilated evening assessment on campus.	1	Form and function of animals: 90 marks (of 235)	Compulsory assessment	01 Oct 17:30
A2 assessment	Topic: Biotechnology. Scheduled invigilated assessment on campus.	1	Biotechnology: 65 marks (of 235)	Compulsory assessment	11 Nov 09:00
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: 30/80 marks Form and function of animals: 30/80 marks Biotechnology: 20/80 marks	Optional Additional assessment opportunity for most students	04 Dec 09:00

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

Metode van assessering	Beskrywing en Inhoud	#	Punte toegeken	Kriteria en Status	Datums
Praktiese assesserings	Plante aanlyn assesserings: (6/20) Diereverslag (10/20) Biotegnologie aanlyn assessering/s (4/20)		20% van die finale punt	Verpligte assesserings	Soos gekommunikeer
A1E1	Onderwerp: Vorm and funksie van plante. Geskeduleerde aand-assessering op kampus onder toesig.	1	Vorm and Funksie van Plante: 80 punte (van 235)	Verpligte assessering	30 Aug 17:30
A1E2 assessering	Onderwerp: Vorm and funksie van diere. Geskeduleerde aand-assessering op kampus onder toesig.	1	Vorm and funksie van diere: 90 punte (van 235)	Verpligte assessering	01 Okt 17:30
A2 assessering	Onderwerp: Biotegnologie. Geskeduleerde assessering op kampus onder toesig.	1	Biotegnologie: 65 punte (van 235)	Verpligte assessering	11 Nov 09:00
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: 30/80 punte Vorm and funksie van diere: 30/80 punte Biotegnologie: 20/80 punte	Opsioneel: Addisionele assesserings-geleentheid vir die meeste studente	04 Des 09:00

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

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

Calculation of final marks

The average of the three assessments (A1E1, A1E2 and A2 – a total of 235 marks) 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 A1E1, A1E2 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 (scientific) report.

Berekening van finale punte

Die gemiddeld van die drie assesserings (A1E1, A1E2 en A2 – 'n totaal van 235 punte) 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 A1E1, A1E2 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 (wetenskaplike verslag) 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.

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-posadres gebruik.

Studente word ook versoek om hul amptelike **SUN-e-posadres** 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 29th of July 2024.

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-plagiat). 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.

Plagiat 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 plagiat](#). 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 29ste Julie 2024.

2024 BIOLOGY 154: Lecture Calendar

WEEK	LECTURE	DATE AND TIME	Sub-Module
1	1	Mon 22 July (10:00 and 12:00)	Form/function of plants
	2	Tue 23 July (08:00) and Wed 24 July (08:00)	Form/function of plants
	3	Fri 26 July (09:00 and 11:00)	Form/function of plants
2	4	Mon 29 July. (10:00 and 12:00)	Form/function of plants
	5	Tue 30 July. (08:00) and Wed 31 July (08:00)	Form/function of plants
	6	Fri 02 Aug (09:00 and 11:00)	Form/function of plants
3	7	Mon 05 Aug. (09:00 and 11:00) Friday timetable	Form/function of plants
		Tuesday 06 Aug and Wed 07 Aug	Form/function of plants
	8	Fri 09 Aug (09:00 and 11:00)	NO LECTURES
4	9	Mon 12 Aug (10:00 and 12:00)	Form/function of plants
	10	Tue 13 Aug (08:00) and Wed 14 Aug (08:00)	Form/function of plants
	11	Fri 16 Aug (09:00 and 10:00)	Form/function of plants
5	12	Mon 19 Aug (10:00 and 12:00)	Form/function of plants
	13	Tue 20 Aug (08:00) and Wed 21 Aug (08:00)	Form/function of plants
	14	Fri 23 Aug (09:00 and 11:00)	Form/function of animals
6	15	Mon 26 Aug (10:00 and 12:00)	Form/function of animals
	16	Tue 27 Aug (08:00) and Wed 28 Aug (08:00)	Form/function of animals
	17	Fri 30 Aug (09:00 and 11:00)	Form/function of animals
7	18	Mon 02 Sept (10:00 and 12:00)	Form/function of animals
	19	Tue 03 Sept (08:00) and Wed 04 Sept (08:00)	Form/function of animals

2024 BIOLOGIE 154: Lesing Kalender

WEEK	LESING	DATUM EN TYD	Sub-Module
1	1	Ma 22 Julie (10:00 en 12:00)	Vorm/funksie van plante
	2	Di 23 Julie (08:00) en Wo 24 Julie (08:00)	Vorm/funksie van plante
	3	Vry 26 Julie (09:00 en 11:00)	Vorm/funksie van plante
2	4	Ma 29 Julie. (10:00 en 12:00)	Vorm/funksie van plante
	5	Di 30 Jul (08:00) en Wo 31 Jul (08:00)	Vorm/funksie van plante
	6	Vry 02Aug (09:00 en 11:00)	Vorm/funksie van plante
3	7	Ma 05 Aug. (10:00 en 12:00)	Vorm/funksie van plante
		Di 06 Aug en Wo 07 Aug	Vorm/funksie van plante
	8	Vry 09 Aug (09:00 en 11:00)	GEEN LESINGS
4	9	Ma 12 Aug (10:00 en 12:00)	Vorm/funksie van plante
	10	Di 13 Aug (08:00) en Wo 14 Aug (08:00)	Vorm/funksie van plante
	11	Vry 16 Aug (09:00 en 10:00)	Vorm/funksie van plante
5	12	Ma 19 Aug (10:00 en 12:00)	Vorm/funksie van plante
	13	Di 20 Aug (08:00) en Wo 21 Aug (08:00)	Vorm/funksie van plante
	14	Vry 23 Aug (09:00 en 11:00)	Vorm/funksie van diere
6	15	Ma 26 Aug (10:00 en 12:00)	Vorm/funksie van diere
	16	Di 27 Aug (08:00) en Wo 28 Aug (08:00)	Vorm/funksie van diere
	17	Vry 30 Aug (09:00 en 11:00)	Vorm/funksie van diere
7	18	Ma 02 Sep (10:00 en 12:00)	Vorm/funksie van diere
	19	Di 03 Sep (08:00) en Wo 04 Sep (08:00)	Vorm/funksie van diere

	20	Fri 06 Sept (09:00 and 11:00)	Form/function of animals		20	Vry 06 Sep (09:00 en 11:00)	Vorm/funksie van diere
		RECESS 11-15 SEPT				RESES 11-15 SEP	
8	21	Mon 16 Sept (10:00 and 12:00)	Form/function of animals	8	21	Ma 16 Sep (10:00 en 12:00)	Vorm/funksie van diere
	22	Tue 17 Sept (08:00) and Wed 18 Sept (08:00)	Form/function of animals		22	Di 17 Sep (08:00) en Wo 18 Sep (08:00)	Vorm/funksie van diere
	23	Fri 20 Sept (09:00 and 11:00)	Form/function of animals		23	Vry 20 Sep (09:00 en 11:00)	Vorm/funksie van diere
9		Mon 23 Sept (10:00 and 12:00)	Form/ Function of animals	9		Ma 23 Sep (10:00 en 12:00)	Vorm / funksie van diere
	24	Tue 24 Sept (08:00) and Wed 25 Sept (08:00)	NO LECTURES		24	Di 24 Sep (08:00) en Wo 25 Sep (08:00)	GEEN LESINGS
	25	Fri 27 Sept 09:00 and 11:00)	Form/function of animals		25	Vry 27 Sep (09:00 en 11:00)	Vorm/funksie van diere
10	26	Mon 30 Sept (10:00 and 12:00)	Form/function of animals	10	26	Ma 30 Sept (10:00 en 12:00)	Vorm/funksie van diere
	27	Tue 01 Oct (08:00) and Wed 02 Oct (08:00)	Form/function of animals		27	Di 01:00 Okt (08:00) en Wo 02 Okt (08:00)	Vorm/funksie van diere
	28	Fri 04 Oct (09:00 and 11:00)	Form/function of animals		28	Vry 04 Okt (09:00 en 11:00)	Vorm/funksie van diere
11	29	Mon 07 Oct (08:00 and 11:00)	Biotechnology	11	29	Ma 07 Okt (08:00 en 11:00)	Bioteegnologie
	30	Tue 08 Oct (08:00) and Wed 09 Oct (08:00)	Biotechnology		30	Di 08 Okt (08:00) en Wo 09 Okt (08:00)	Bioteegnologie
	31	Fri 11 Oct (09:00 and 11:00)	Biotechnology		31	Vry 11 Okt (09:00 en 11:00)	Bioteegnologie
12	32	Mon 14 Oct (10:00 and 12:00)	Biotechnology	12	32	Ma 14 Okt (10:00 en 12:00)	Bioteegnologie
	33	Tue 15 Oct (08:00) and Wed 16 Oct (08:00)	Biotechnology		33	Di 15 Okt (08:00) en Wo 16 Okt (08:00)	Bioteegnologie
	34	Fri 18 Oct (09:00 and 11:00)	Biotechnology		34	Vry 18 Okt (09:00 en 11:00)	Bioteegnologie
13	35	Mon 21 Oct (10:00 and 12:00)	Biotechnology	13	35	Ma 21 Okt (10:00 en 12:00)	Bioteegnologie
	36	Tue 22 Oct (08:00) and Wed 23 Oct (08:00)	Biotechnology		36	Di 22 Okt (08:00) en Wo 23 Okt (08:00)	Bioteegnologie
	37	Fri 25 Oct (09:00 and 11:00)	Biotechnology		37	Vry 25 Okt (09:00 en 11:00)	Bioteegnologie