

BDE 324 Angiosperm diversity

16 credits, first semester

Course coordinator: Prof. L.L. Dreyer

(Room 1095, Natural science building)

Lecturers: Prof. L.L. Dreyer (LLD), Dr James Rodger (JR), Ms Zaynab Shaik (ZS), and Prof. N. Makunga (NPM)

Course assistant: Mrs. Janette Hutton

Internal moderator: Prof, Anton Pauw

Aims: The aims of this module are firstly to introduce students to the origin, diversity and phylogenetic relationships among the angiosperms. As sub-theme those disciplines and their specific traits that are of phylogenetic importance in the reconstruction of angiosperm evolution will be considered in more detail. These include molecular traits, palynology, morphology, anatomy, embryology and karyology. Finally, chemical diversity among angiosperms will be explored.

After completion of this course you should:

- have a good overview of the main evolutionary developments in the angiosperms
- have a sound knowledge of the traits from diverse disciplines that are significant in reconstructing relationships among angiosperms
- be able to interpret and describe the morphological diversity within the angiosperms, at least at the family level
- be able to think and communicate laterally and critically about the angiosperms

Text Book: Plant Systematics: a phylogenetic approach. Judd, WS, Cambell, CS, Kellogg, EA, Stevens, PF. and Donoghue, MJ. 2002. Plant Systematics.

Assessment: This course is flexible assessment. There will be a **test on 6 April 2022** (time and venue to be confirmed) and a **practical exam on Tuesday 3 May 2022** at 14h00 in the practical laboratories used during the module. There will be only one examination test on **4 June 2020** (venue to be confirmed). Please note that there is **NO** supplementary exam. The examination covers topics discussed in class as well as material on SUNLearn. You will complete an assignment based on the work of NPM, which will contribute 25% (assignment mark) to your final marks. The assignment hand-in date is **19 May 2022**.

Class test: 25%

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|-----------------------|-------------|
| Practical Test | 25% |
| Assignments | 25% |
| Exam test | 25% |
| | — |
| = Final mark | 100% |

In order to pass the module, you need to achieve a final mark of at least 50%. In addition, although this course uses continuous assessment, it is COMPULSORY to write ALL tests/exams, and to hand in the assignment in order to avoid an incomplete. Other rules relevant to examination are in the 2022 General Yearbook

Lecture programme: The course comprises of 37 lectures. We aim to present most (if not all) lectures in person, but that may change at short notice depending on the course of the pandemic. VERY strict Covid-19 protocols will be compulsory in all lectures and practicals. Lecture times are Monday (8h00 – 8h50), Wednesdays (09h00 – 09h50) and Thursdays (12h00 – 12h50) in the Natural Science Building, Room 2025.

| Week | Date | Lecturer | Theme |
|------|------|----------|--------------------------------------|
| 1 | 14/2 | ZS | Angiosperm origin and classification |
| 1 | 16/2 | ZS | Angiosperm origin and classification |
| 1 | 17/2 | ZS | Angiosperm origin and classification |
| 2 | 21/2 | ZS | Angiosperm diversification |
| 2 | 23/2 | ZS | Angiosperm diversification |
| 2 | 24/2 | ZS | Angiosperm diversification |
| 3 | 28/2 | ZS | Molecular systematics |
| 3 | 02/3 | ZS | Molecular systematics |
| 3 | 03/3 | ZS | Molecular systematics |
| 4 | 07/3 | JR | Angiosperm reproductive innovations |
| 4 | 09/3 | JR | Angiosperm reproductive innovations |
| 4 | 10/3 | JR | Angiosperm reproductive innovations |
| 5 | 14/3 | JR | Angiosperm reproductive innovations |

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| 5 | 16/3 | JR | Angiosperm reproductive innovations |
| 5 | 17/3 | JR | Angiosperm reproductive innovations |
| 6 | 21/3 | | PUBLIC HOLIDAY |
| 6 | 23/3 | LLD | Introduction to Systematics |
| 6 | 24/3 | LLD | Introduction to Systematics |
| 6 | 25/3 | LLD | Introduction to Systematics Monday timetable |
| UNIVERSITY RECESS 28.03 – 01.04 | | | |
| 7 | 04/4 | LLD | Vegetative morphology |
| 7 | 06/4 | LLD | Vegetative morphology |
| 7 | 07/4 | LLD | Vegetative morphology |
| 8 | 11/4 | LLD | Reproductive morphology |
| 8 | 13/4 | LLD | Reproductive morphology |
| 8 | 14/4 | - | Friday timetable |
| 9 | 18/4 | | PUBLIC HOLIDAY |
| 9 | 19/4 | LLD | Reproductive morphology Monday timetable |
| 9 | 20/4 | LLD | Anatomy |
| 9 | 21/4 | LLD | Anatomy |
| 10 | 25/4 | LLD | Karyology |
| 10 | 27/4 | | PUBLIC HOLIDAY |
| 10 | 28/4 | LLD | Karyology |
| 11 | 02/5 | | PUBLIC HOLIDAY |
| 11 | 04/5 | NPM | Chemical diversity |
| 11 | 05/5 | NPM | Chemical diversity |
| 12 | 09/5 | NPM | Chemical diversity |
| 12 | 11/5 | NPM | Chemical diversity |
| 12 | 12/5 | NPM | Chemical diversity |
| 13 | 16/5 | NPM | Chemical diversity |
| 13 | 18/5 | NPM | Chemical diversity |
| 13 | 19/5 | NPM | Chemical diversity |

COMPULSORY. Official practical sessions are on Tuesday afternoons (14h00-17h00) in the Natural Science building (laboratory 2025). The practical sessions will comprise of the following:

| Week | Date | Lecturer | Theme |
|------|------|--------------|--|
| 1 | 15/2 | LLD TEAMS | Introduction |
| 2 | 22/2 | LLD | Angio 1 |
| 3 | 01/3 | LLD | Angio 2 |
| 4 | 08/3 | LLD | Angio 3 |
| 5 | 15/3 | LLD | Angio 4 |
| 6 | 22/3 | ZS | Angio 5 |
| 7 | 05/4 | LLD | Angio 6 |
| 8 | 12/4 | LLD | Angio 7 |
| 9 | 26/4 | ZS | Angio 8 |
| 10 | 03/5 | LLD & ZS | Prac exam |
| 12 | 10/5 | NPM | Medicinal plants and chemical diversity |
| 13 | 17/5 | NPM | Exploitation of chemical diversity in industry |

Important information: In the event of missing a test or important deadline, a valid, original medical certificate must be handed to Janette Hutton **within 5 days** after the test of the assignment hand-in date. A replacement **oral test** will be scheduled within one week (7 days) after the original test date. It is the responsibility of the student to establish the time and place of this oral. No postponement will be granted for the hand in of assignments or practical reports, and a penalty of 5% per day will be subtracted from all such marks.

Language implementation for this module:

The following language option will be implemented in this BDE module:

- Lectures will be offered in English only.

The materials for learning will be made available as follows:

- All compulsory reading material will be provided in English. Compulsory reading material (excluding published material) will

Practical programme: The course includes 13 practical sessions, and attendance of all of these practicals is

also be provided in Afrikaans unless it is not reasonably practicable to do so.

- Module frameworks/study guides will be available in Afrikaans and English.
- Question papers for tests, examinations and other summative assessments will be available in Afrikaans and English. Students may answer all assessments and submit all written work in either Afrikaans or English.