

Plants, Pathogens and Pests (1002626)

Cursusomvang *(nominale waarden; effectieve waarden kunnen verschillen per opleiding)*

Studiepunten 5.0 **Studietijd 150 u**

Aanbodsessies in academiejaar 2023-2024

A (semester 2) Engels Gent

Lesgevers in academiejaar 2023-2024

Höfte, Monica	LA21	Verantwoordelijk lesgever
Bauters, Lander	LA25	Medewerker
Kyndt, Tina	LA25	Medelesgever
Van Leeuwen, Thomas	LA21	Medelesgever

Aangeboden in onderstaande opleidingen in 2023-2024

	stptn	aanbodsessie
International Master of Science in Agro- and Environmental Nematology	5	A
Master of Science in Bioscience Engineering: Cell and Gene Biotechnology	5	A
Uitwisselingsprogramma bio-ingenieurswetenschappen: cel- en genbiotechnologie (niveau master-na-bachelor)	5	A
Uitwisselingsprogramma bio-ingenieurswetenschappen: landbouwkunde (niveau master-na-bachelor)	5	A

Onderwijstalen

Engels

Trefwoorden

Basal and induced defence mechanisms, Plant-pathogen interactions, Pathogen-associated molecular patterns, virulence and pathogenicity factors, effectors, bacterial pathogens, fungal pathogens, plant-parasitic nematodes, viral pathogens, mites and insects

Situering

Insights in the molecular changes that occur during plant-pathogen/pest interactions can lead to innovative approaches to control plant diseases and plant pests.

Inhoud

- Basal and induced defense mechanisms: constitutive and inducible defense, DAMP, MAMP, HAMP, NAMP and PAMP triggered immunity, resistance genes, signal transduction, induced resistance, plant hormones.
- Introduction to the most important groups of fungal and bacterial plant pathogens and the molecular mechanisms that they use to interact with their host
 - Bacterial plant pathogens: adhesion, penetration, colonization, type III secretion, bacterial effector proteins, toxins, cell wall degrading enzymes, hormones
 - Fungal plant pathogens: pathogenomics of Oomycetes, powdery mildews, Magnaporthe, Pleosporales, Botrytis and Sclerotinia, Fusarium, rusts and smuts
- Introduction to the most important types of plant parasitic nematodes and the molecular mechanisms of their interaction with plants
 - important plant-parasitic nematodes and their feeding behavior
 - attraction, invasion & migration, cell wall degrading enzymes
 - formation of feeding cells, plant peptide mimics, effectors, role of hormones
 - molecular methods for nematode control
- Introduction to the most important types of arthropod pests (mites, insects) and the molecular mechanisms of their interaction with plants
 - Important crop pests, their host range and feeding mode
 - strategies plants have evolved to cope with herbivores
 - traits herbivores have evolved that enable them to counter plant defences

Begincompetenties

Biochemistry, basics molecular biology, plant and animal biology, microbiology

Eindcompetenties

- 1 Have insight into the plant defence system.
- 2 Have knowledge on the most important types of plant pathogens and pests.
- 3 understand the molecular mechanisms that are important for the interaction between pathogens/pests and a host plant.

- 4 read scientific publications in the field of plant-pathogen/pest interactions
- 5 critically discuss recent scientific literature concerning plant-pathogen and plant-pest interactions

Creditcontractvoorwaarde

Toelating tot dit opleidingsonderdeel via creditcontract is mogelijk mits gunstige beoordeling van de competenties

Examencontractvoorwaarde

Dit opleidingsonderdeel kan niet via examencontract gevolgd worden

Didactische werkvormen

Hoorcollege, Practicum, Peer teaching

Toelichtingen bij de didactische werkvormen

Theory: oral lectures
Exercises: experiments in laboratory and greenhouse
Microteaching: students present a paper concerning plant-nematode interactions

Leermateriaal

Powerpoint presentation, course notes

Referenties**Vakinhoudelijke studiebegeleiding**

by email or personally (after the class or on appointment)

Evaluatiemomenten

periodegebonden en niet-periodegebonden evaluatie

Evaluatievormen bij periodegebonden evaluatie in de eerste examenperiode

Mondelinge evaluatie, Werkstuk

Evaluatievormen bij periodegebonden evaluatie in de tweede examenperiode

Mondelinge evaluatie

Evaluatievormen bij niet-periodegebonden evaluatie

Participatie, Werkstuk

Tweede examenkans in geval van niet-periodegebonden evaluatie

Examen in de tweede examenperiode is niet mogelijk

Toelichtingen bij de evaluatievormen

Practical exercises: evaluation based on participation and report (20% of total score)
Theory: evaluated by oral examination with written preparation (80% of total score)

Eindscoreberekening

Practical exercises: evaluation based on participation and report (20% of total score)
Theory: evaluated by oral examination with written preparation (80% of total score)
Students who eschew period aligned and/or non-period aligned evaluations for this course unit may be failed by the examiner.