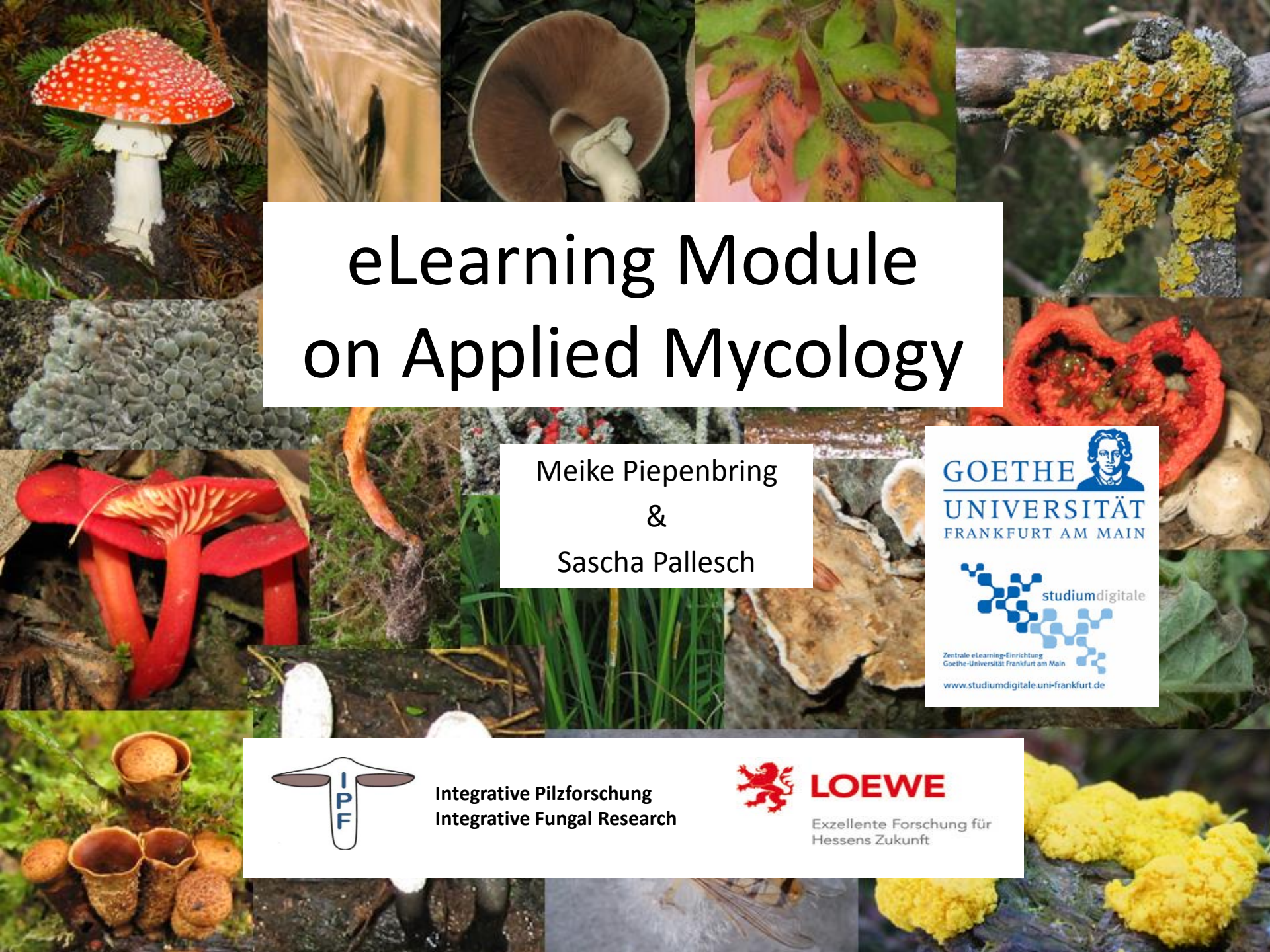

eLearning Module on Applied Mycology

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&
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studiumdigitale

Zentrale eLearning-Einrichtung
Goethe-Universität Frankfurt am Main

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IPF

Integrative Pilzforschung
Integrative Fungal Research

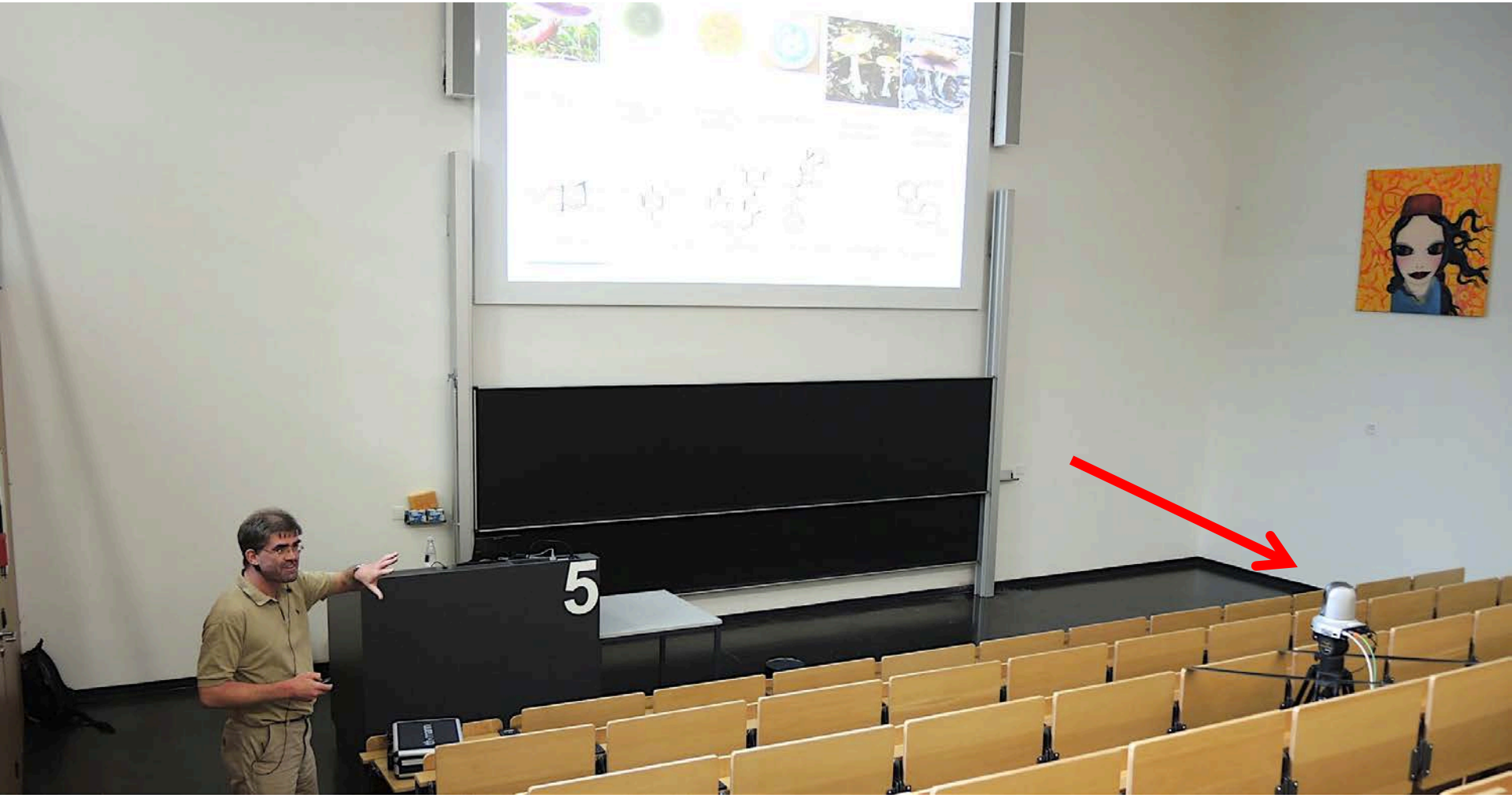
LOEWE

Exzellente Forschung für Hessens Zukunft

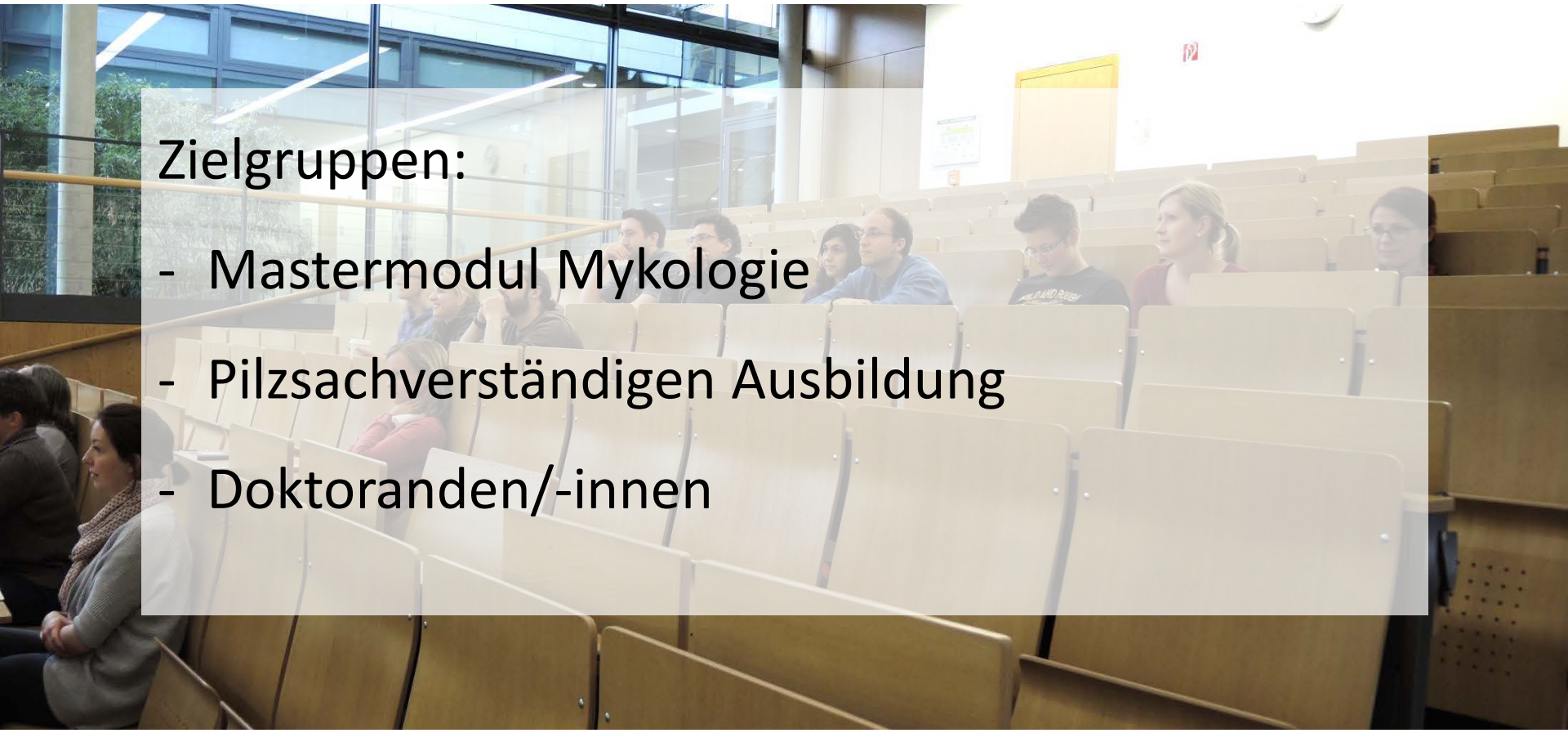
Inhalt

- Einleitung
- Kursaufbau
- Umsetzung
- Probleme bei der Umsetzung

Einleitung



Einleitung



Zielgruppen:

- Mastermodul Mykologie
- Pilzsachverständigen Ausbildung
- Doktoranden/-innen

Kursaufbau

V1 V2 V3 V4 V5 V6 V7 V8 V9 V10 V11 V12

2 – 3 Schnitte pro Video

Kursaufbau:

Einleitung → 1. Video → Quizfragen → Bilder → 2.Video → Quizfragen →Bilder → 3. Video → Quizfragen → Bilder → Ende

Kursaufbau

Treasure hunting in fungal diversity

Introduction

About the lesson:

Welcome to the lesson "Treasure hunting in fungal diversity". In this introductory talk of the IPF lecture series, Prof. Piepenbring presents the high diversity of fungi in different systematic groups and their valuable properties for mankind.

The lesson is composed of three video sequences that formed part of one lecture. These sequences are followed by quizzes in which you can make use of what you just learnt. Working through the complete module can probably be done in XXX minutes, but this depends on your individual level of knowledge.

So don't be ashamed if it takes longer - you are here to learn something! Here is a document containing information useful to follow the lecture: (pdf). You might print it as a handout.

About the speaker:

Prof. Dr. Meike Piepenbring is a botanist and mycologist fascinated by biodiversity in the tropics. She lived for several years in Panama and in addition to numerous scientific publications on fungal diversity, new species, and systematic groups, she wrote a textbook on tropical mycology (link).

Kursaufbau

Treasure hunting in fungal diversity

Chapter 1: Introduction to fungi

GOETHE UNIVERSITÄT FRANKFURT AM MAIN

HRZ

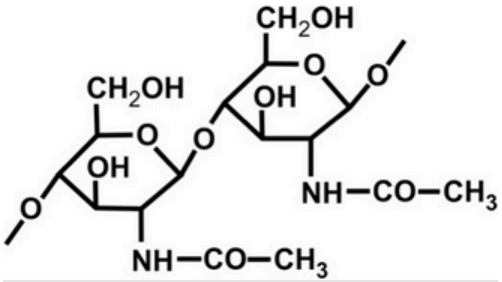
Kursaufbau

Lecture for applied mycology LE 1 1 2 3 4 5 6 7 8 9 10 11 12 13

Treasure hunting in fungal diversity

Chapter 1 - Question 2

Which molecular compounds/structures are present in a fungal cell wall?



This is the main component in a fungal cell wall. Do you recognize it?

1. cellulose
2. chitin
3. glucan
4. glycoprotein
5. mannan
6. phospholipids
7. Spitzenkörper

Antwort prüfen | Lösung anzeigen | Reset

Kursaufbau

Treasure hunting in fungal diversity

Chapter 3 - Question 1

1. To which order do species of Aspergillus and Penicillium belong to?

2. Conidiogenous cells of species of Aspergillus and Penicillium are called..?

3. Species of Aspergillus morphologically differ from species of Penicillium by the presence of a...?

4. What is the name of the most famous and expensive medicinal fungus that is an entomopathogenic species of the Hypocreales?

1. Eurotiales
2. phialide
3. Vesicle
4. Ophiocordyceps sinensis

Antwort prüfen | Lösung anzeigen | Reset

Feedback:
Congratulations! Exercise solved correctly.

Kursaufbau

"The lichen symbiosis: a rich but poorly exploited source of natural products"

Chapter 3 - Question 1

Insert the correct sentence complements below the sentence fragments present in lines 1, 3 and 5.

1. Bitter tasting substances are supposed to ...
2. ... protect underlying asci from UV-light.
3. Compounds preventing seed germination probably ...
4. ... prevent lichens from being overgrown by plants.
5. Pigments covering the layer of asci in apothecia are supposed to ...
6. ...protect lichen thalli against grazing.

Antwort prüfen | Lösung anzeigen | Reset

Feedback:
Points achieved: 0 of 3

Kursaufbau

Lecture for applied mycology

5 6 7 8 9 10 11 12 13 14 15 16 17

Treasure hunting in fungal diversity

You can eat these galls when they are young (completely white)!

Ustilago maydis

Kursaufbau

Integrative Pilzforschung
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Introductory information for the talk by M. Piepenbring:

"Treasure hunting in fungal diversity"

Specific English vocabulary

- anise
- entomopathogenic

Knowledge being a prerequisite for understanding

- cycle of generations and changes of nuclear stages
- haploid (1n)
- diploid (2n)
- mitosis, meiosis
- plasmogamy (P!)
- karyogamy (K!)
- ascus
- basidium
- Ascomycota life cycle
- Basidiomycota life cycle

Study the following animations of life cycles ((link)):

- cycle of generations and changes of nuclear stages
- basidium
- *Agaricus* sp.
- *Ustilago maydis*
- ascus
- Pezizales

Knowledge of biological diversity (selection)

- *Aspergillus niger*, Eurotiales, Ascomycota
- *Beauveria bassiana*, Hypocreales, Ascomycota
- *Ganoderma lucidum*, Polyporales, Basidiomycota
- *Lentinula edodes*, Agaricales, Basidiomycota
- *Neurospora crassa*, Sordariales, Ascomycota
- *Ophiocordyceps sinensis*, Hypocreales, Ascomycota
- *Penicillium notatum*, Eurotiales, Ascomycota
- *Piptoporus betulinus*, Polyporales, Basidiomycota
- *Strobilurus* spp., Agaricales, Basidiomycota
- *Trametes versicolor*, Polyporales, Basidiomycota
- *Tricholoma matsutake*, Agaricales, Basidiomycota
- *Ustilago maydis*, Ustilaginales, Basidiomycota

Knowledge of chemical structures

- amino acid
- carotenoids
- glucan
- glycoprotein
- mannan
- phospholipid
- polyketide
- polysaccharide
- protein
- sequiterpenes
- terpenoids

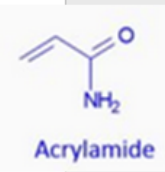
Umsetzung

glucose and fixed nitrogen	*Fusarium*		quorn (mycoprotein)	SmF

comp. literature: chapter 2 in The Mycota X

7. Why are the pellets produced by *Fusarium venenatum* heated to 65 °C?
- The fungus thereby is killed so it does not continue to grow. (correct)
- All enzymes are denaturated so the product does not change any more. (wrong)
- Enzymes degrading nucleic acids are active at this temperature and improve the quality of the product by reducing the concentration of nucleic acids. (correct)
- Enzymes degrading fatty acids are active at this temperature and improve the quality of the product by reducing the concentration of fat. (wrong)

8. Which statements concerning acrylamide in food are correct?

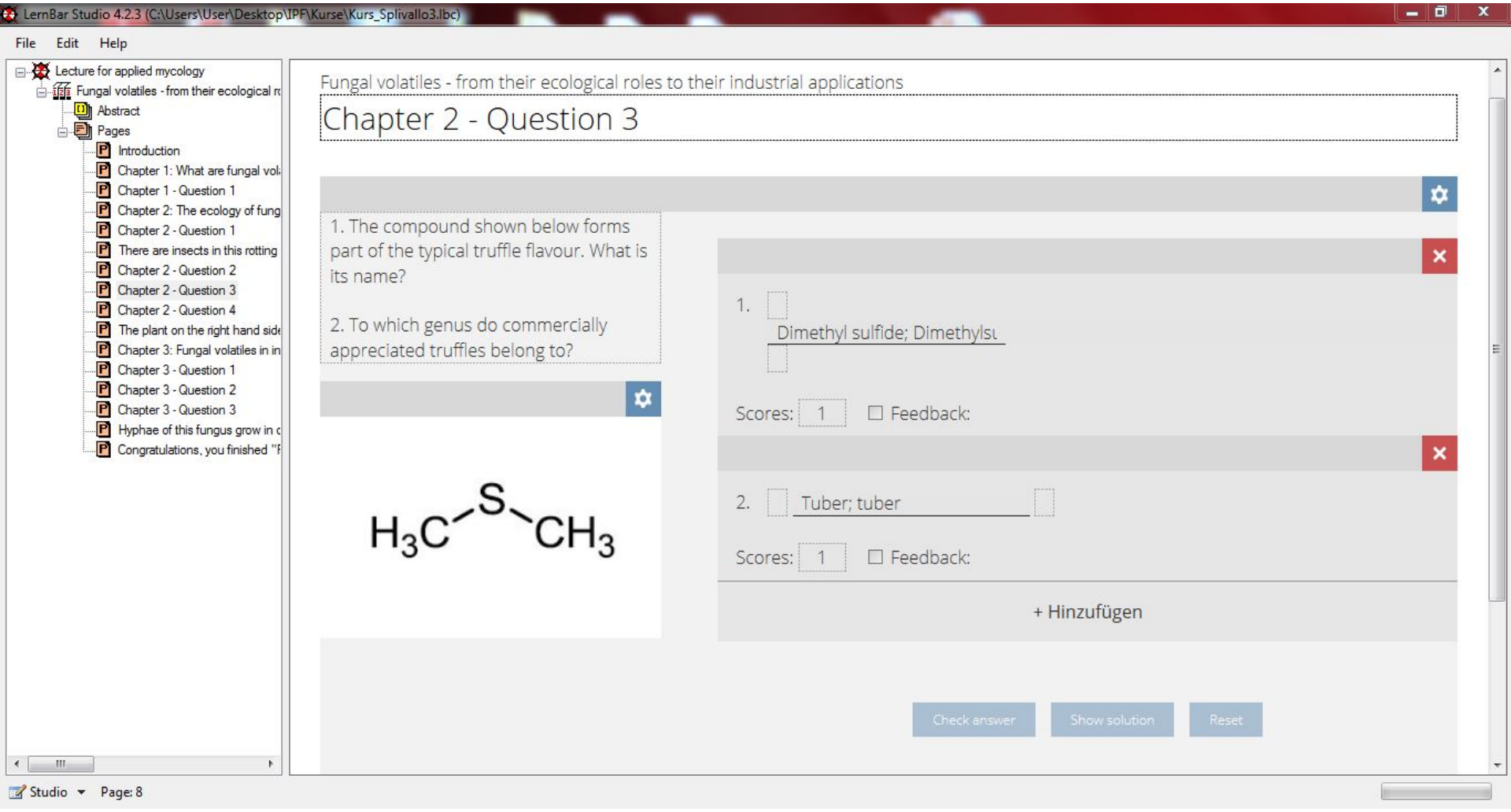


Acrylamide

- ~~acrylamid~~acrylamide is produced by asparagine plus reducing sugars under high temperatures, e.g., in chips, cookies, french fries, and steaks. (correct)
- The concentration of provitamin D can be increased by asparaginase in combination with UV-light radiation. (wrong)
- The concentration of acrylamide in a product can be decreased by asparaginase that oxidizes asparagine to aspartic acid. (correct)
- Asparaginase is provided by *Aspergillus oryzae*. (correct)

9. Fill in the missing words

Umsetzung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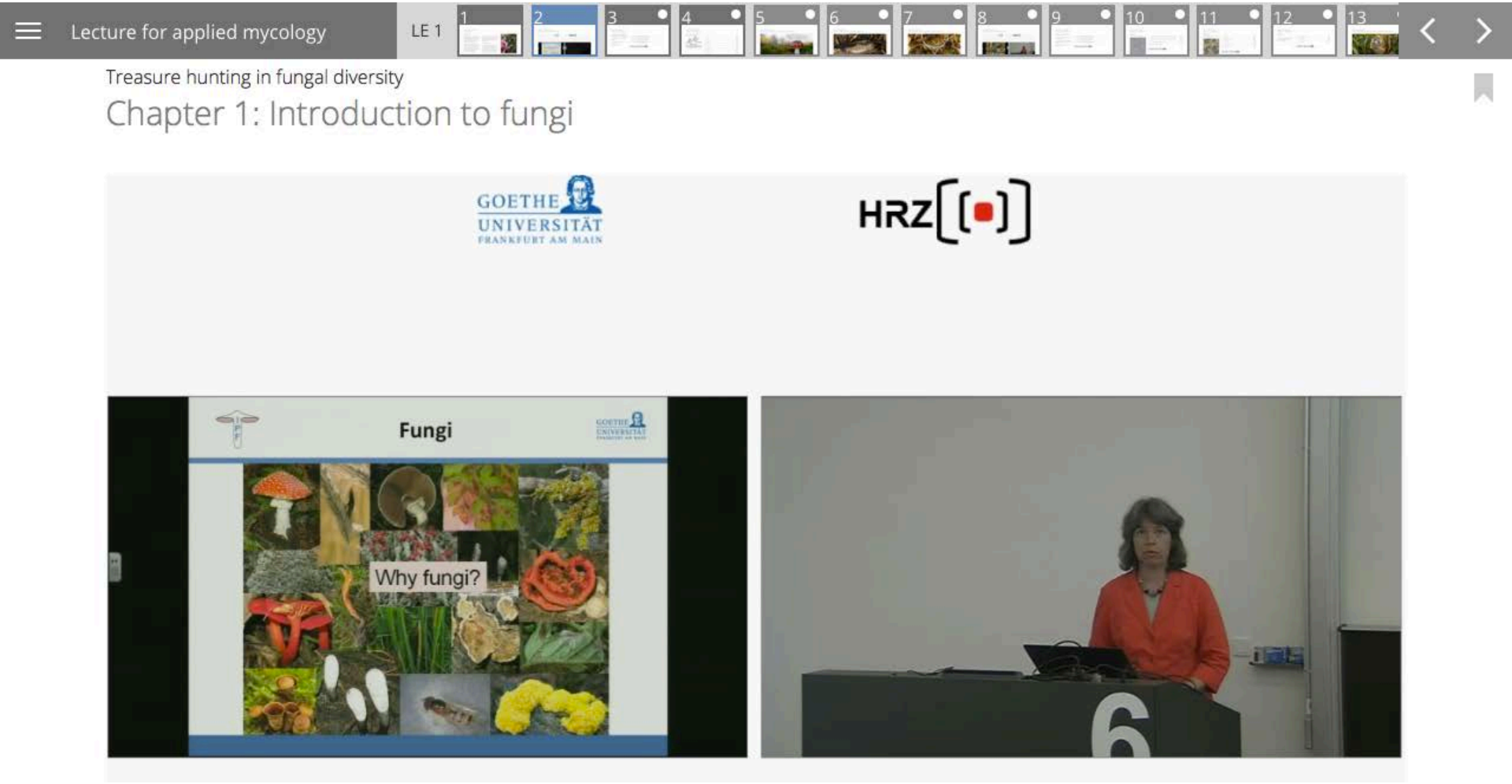
Lecture for applied mycology
Fungal volatiles - from their ecological r
Abstract
Pages
Introduction
Chapter 1: What are fungal vol
Chapter 1 - Question 1
Chapter 2: The ecology of fung
Chapter 2 - Question 1
There are insects in this rotting
Chapter 2 - Question 2
Chapter 2 - Question 3
Chapter 2 - Question 4
The plant on the right hand side
Chapter 3: Fungal volatiles in in
Chapter 3 - Question 1
Chapter 3 - Question 2
Chapter 3 - Question 3
Hyphae of this fungus grow in c
Congratulations, you finished "F
Fungal volatiles - from their ecological roles to their industrial applications
Chapter 2 - Question 3
1. The compound shown below forms part of the typical truffle flavour. What is its name?
2. To which genus do commercially appreciated truffles belong to?
H3C S CH3
1.
Dimethyl sulfide; Dimethylsu
Scores: 1 Feedback:
2.
Tuber; tuber
Scores: 1 Feedback:
+ Hinzufügen
Check answer
Show solution
Reset
Studio
Page: 8

Umsetzung


Lecture for applied mycology
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Treasure hunting in fungal diversity
Chapter 1: Introduction to fungi
GOETHE UNIVERSITÄT FRANKFURT AM MAIN
HRZ
Fungi
Why fungi?
6

Probleme bei der Umsetzung

- Fragenideen häufig nicht umsetzbar in Lernbar wegen...

  ... Textbegrenzung
  ... Änderung der Abfrageformate

  → Besser: Fragen direkt in Lernbar Studio entwickeln

- Technische Probleme in Lernbar Studio

  - abspeichern der Inhalt funktioniert nur nicht zuverlässig
  - Schrift kann nicht manuell formatiert werden (kein Copy & Past!)

- Umformatieren der Aufzeichnungen in lernbar-kompatibles Format

- Datenübermittelung zwischen HRZ und Studium Digitale dauert sehr lang

Vielen Dank für Ihre Aufmerksamkeit!