



Course descriptions:	
Department/Code	BOT/OMPEN
Title	English Lectures from General Mycology
Accredited / Credits	4
Time requirements – (hours/year)	Lecture 2 hours/week
Timetable	Yes
Minimum (B + C) students	Not set
Substituted course	None
Preclusive courses	N/A
Prerequisite courses	N/A
Informally recommended courses	N/A
Courses depending on this Course	N/A
Academic Year	2018/2019
Form of course completion	Exam
Type of completion	Combined
Course credit prior to examination	No
Included in study average	Yes
Language of instruction	English
Repeated registration	No
Semester taught	WS
Optional course	No
Internship duration	-

#### Course objectives (annotation):

The lectures are focused on general principles of fungal biology and ecology. The lectures are presented in English language.

#### Course content (syllabus)

The main attention is paid to general characteristics of fungal organisms, their evolution and speciation, basic problems of classification and taxonomy, cytology, morphology, reproduction and genetics, physiology, metabolism, ecology, importance and utilization of fungal organisms (mainly in biotechnology). The lectures include topics such as thallus morphology, hyphae and their modifications, anatomy and morphology of fungal sporocarps and spores. Reproduction of fungi, life

cycles of representatives of main fungal groups. Genetics and genetic variability of fungi - cell division, mutations, parasexuality, heterokaryosis, genetics of virulence and pathogenicity. Fungal physiology - nutrition, influence of environmental factors; metabolism - glycolysis, respiration, bioluminescence, primary and secondary metabolites. Ecological classification of fungal organisms - saprotrophs, symbionts (mycorrhizal fungi, lichens, zoosymbiosis), zoo- and phytopathogenic fungi - classification, distribution and importance. Mycotoxicology (toxins of micromycetes and macromycetes). Utilization of fungi in industry, agriculture, biotechnology and medicine.

#### Requirements on students

Writing exam from presented lectures.

#### Guarantors and lecturers

**Guarantors:** prof. Ing. Aleš Lebeda, DrSc.,

**Seminar lecturer:** prof. Ing. Aleš Lebeda, DrSc., doc. RNDr. Barbora Mieslerová, Ph.D.

#### Literature

Recommended: Hawksworth, D.L., Kirk, P.M., Sutton, B.C., Pegler, D.N. Ainsworth & Bisby's dictionary of the fungi. 8th edition.. CAB International, University Press, Cambridge, UK., 1995.

Recommended: Moore, D., Novak Frazer, L.A. Essentials fungal genetics. Springer-Verlag, New York, USA, 2002.

Recommended: Hudson H. J. Fungal Biology. Edward Arnold Publishers Ltd., London, 1986.

Recommended: Dix, N.J., Webster, J. Fungal Ecology. Chapman & Hall, London, 1995.

Recommended: Griffin D.H. Fungal Physiology. Willey-Liss, New York, 1994.

Recommended: Kavanagh, K. (Ed.). Fungi. Biology and Applications. Wiley, Chichester. Chichester, 2005.

Recommended: Alexopoulos, C.J., Mims, C.W., Blackwell, M. Introductory Mycology. John Wiley & Sons, New York, 1996.

Recommended: Deacon, J.W. Modern Mycology. 3rd edition. Blackwell Science Ltd.. Oxford, 1997.

Recommended: The Fifth Kingdom, 2nd edition. Mycologue Publications, Waterloo, Ontario, Canada (Kendrick, B.)

Recommended: Carlile, M.J., Watkinson S.C., Gooday, G.W. The fungi. Second Edition. Academic Press, San Diego, 2001.

Recommended: Esser, K., Lemke, P.A. (Eds.). The Mycota, Vols. I-XII. 1994-. Springer, Berlin, 2006.

#### Study programmes

Fytopatologie N0511A030012

Biologie 1501R001

#### Competences acquired

Student should be able to (after attending the course)in English language:

- Recall fungal terminology (systematics, morphology, anatomy).
- Describe main characteristics of reproduction modes and life-cycles in Fungi.
- Classify Fungi according to their ecology.
- Discuss the use of Fungi in the industry and biotechnology.

### Teaching methods

Lecture  
Demonstration  
Projection (static, dynamic)  
Activating (Simulations, Games, Dramatization)

### Assessment methods

Mark  
Written exam



Course descriptions:	
Department/Code	BOT/ZFPEN
Title	Fytopatology in English Language
Accredited / Credits	4
Time requirements – (hours/year)	Lecture 2 hours/week
Timetable	Yes
Minimum (B + C) students	Not set
Substituted course	None
Preclusive courses	None
Prerequisite courses	None
Informally recommended courses	None
Courses depending on this Course	None
Academic Year	2018/2019
Form of course completion	Exam
Type of completion	Combined
Course credit prior to examination	No
Included in study average	Yes
Language of instruction	English
Repeated registration	No
Semester taught	WS
Optional course	Yes
Internship duration	-

#### Course objectives (annotation):

Take up with basic terms and topics of phytopathology and present the most important plant diseases. The lectures are presented in English language.

#### Course content (syllabus)

The course inform the students with definition of phytopathology, selected phytopathological terms, history and importance of phytopathology and classification of plant diseases. Than the attention is paid on biotic causers of diseases (viruses, viroids, bacteria, fungi, protozoan, nematodes and parasitic plants); course of infection proces; defense strategies of plants to pathogens; genetics in the interaction host and pathogen and plant protection. The other part of

lectures is focused on the most important diseases of field crops, vegetables, fruits, grapevine, technical crops and ornamental trees and herbs.

1. Introduction.
2. Causers of infective diseases of plants.
3. Specificity of interactions host-pathogen.
4. Course of infection process.
5. Defense strategies of plants to pathogens.
6. Genetics in the interaction host and pathogen.
7. Plant protection.
8. Diseases of field crops.
9. Diseases of vegetables.
10. Diseases of fruits.
11. Diseases of technical and ornamental plants.
12. Diseases of trees.

#### Requirements on students

Written exam

Recognition of 10 the most important plant diseases.

#### Guarantors and lecturers

**Guarantors:** prof. Ing. Aleš Lebeda, DrSc.,

**Lecturer:** prof. Ing. Aleš Lebeda, DrSc., doc. RNDr. Barbora Mieslerová, Ph.D., RNDr. Božena Sedláková, Ph.D., doc. RNDr. Michaela Sedlářová, Ph.D.

#### Literature

**Recommended:** Holliday P. (1998). *A Dictionary of Plant Pathology. 2nd Ed.*. Cambridge University Press.

**Recommended:** Šutić D.D., Sinclair J.B. (1991). *Anatomy and physiology of diseased plants.*. CRC Press, Florida.

**Recommended:** Kúdela V. a kol. (1989). *Obečná fytopatologie.*. Academia, Praha.

**Recommended:** Lucas, J.A. (1998). *Plant Pathology and Plant Pathogens. 3rd Ed.*. Blackwell Science.

**Recommended:** Agrios G.N. (2005). *Plant Pathology. 5th Edition.*. Elsevier AP, Oxford.

**Recommended:** Kúdela V. a kol. (2002). *Rostlinolékařská bakteriologie.*. Academia, Praha.

**Recommended:** Jones, G. (1998). *The epidemiology of plant diseases.*. Kluwer Academic Publishers.

#### Study programmes

Fytopatologie N0511A030012

Experimentální biologie rostlin 1501T029

Botanika 1507T004

Molekulární a buněčná biologie 1515T004
Učitelství biologie pro střední školy 7504T029
Ekologie a ochrana životního prostředí 1601T005

### Competences acquired

Student should be able to (after attending the course):

- define the basic terms of phytopathology
- name causers of biotic diseases of plants
- recognize symptoms of diseased plants
- discuss the defense mechanisms of plants to pathogens
- recognize the most important plant diseases

### Teaching methods

Lecture  
 Demonstration  
 Projection (static, dynamic)

### Assessment methods

Mark  
 Written exam