

1. Organization of the course



Bi7430 Molecular Biotechnology

Outline

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- Introduction of course
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- Evaluation
- Recommended literature

Introduction of Lecturers



Doc. RNDr. Zbyněk Prokop, Ph.D. (UČO 23696)

- Loschmidt Laboratories, leader of research team
- co-founder and CEO of Enantis – 1st biotech spin-off at MU
- protein engineering for biotechnological applications
- zbynek@chemi.muni.cz, (A13, office 232)



Mgr. Pavel Dvořák (UČO 151419)

- Loschmidt Laboratories, research specialist
- metabolic and protein engineering
- paveld@chemi.muni.cz, (A13, office 309)

Introduction of Course

EXTENSIVE MULTIDISCIPLINARITY

PREREQUISITES:

- ❑ basic knowledge of microbiology, molecular biology, biochemistry, immunology and genetics

COURSE FOCUSE:

- ❑ the specific aspects of **modern biotechnology**
- ❑ examples of **up to date applications** in industry, agriculture, pharmacy, biomedicine nad environmental protection
- ❑ the role of modern biotechnology in **sustainable living**

Course content

2. Introduction to Molecular Biotechnology

3. Protein Engineering

**METHODOLOGICAL
LECTURES**

4. Metabolic Engineering I.

5. Metabolic Engineering II.

6. Molecular Biotechnology in Industry

**TECHNOLOGICAL
LECTURES**

7. Molecular Biotechnology in Medicine I.

8. Molecular Biotechnology in Medicine II.

9. Molecular Biotechnology in Agriculture

10. Molecular Biotechnology in Environmental Protection

Instructions

- ❑ bring printed copy of the slides as **handouts** for notes








Instructions

- bring printed copy of the slides as **handouts** for notes
- find all materials including printed version of the slides at <http://is.muni.cz/>
- be on time**, come at least 5 min before the lecture opening
- attendance is mandatory**
- if any problems with the lecture, please, contact lecturers
- be **active** and participate in **discussions**

Lecturing system

- powerpoint slides as well as recommended literature in **English**
- lecturing, discussions and examination in **Czech**
- 2 hrs per week**
- lecture part I. (40 min) -> **BREAK (10 min)** -> lecture part II. (40 min)
- essential knowledge** indicated by exclamation mark 
(appears in the tests)

Evaluation

- four **progress written tests** during the lecturing period
 - at the beginning of lecture 4., 6., 8. and 10. (duration 10 min)
 - 10 questions from previous topics (cumulative)
- one **final written test** during the examination period
 - 60 questions from entire content of the course
 - duration one hour
- OVERALL EVALUATION** comprises results of the progress tests (**40%**) and result of the final written test (**60%**)

Recommended literature

- M. Wink (Ed.) 2011: **An Introduction to Molecular Biotechnology:** Fundamentals, Methods and Applications, 2nd Edition, Willey-Blackwell
- B. R. Glick, J. J. Pasternak, C. L. Patten 2011: **Molecular Biotechnology:** Principles and Applications of Recombinant DNA, 4th Edition, ASM Press
- J. M. Walker, R. Rapley 2009: **Molecular biology and biotechnology,** 5th Edition, RSC Publishing
