

Course Syllabus

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|----|--|-----------------------------------|
| 1 | Course title | advanced metabolism |
| 2 | Course number | 0354712 |
| 3 | Credit hours (theory, practical) | 3 |
| | Contact hours (theory, practical) | 3 |
| 4 | Prerequisites/corequisites | Biochemistry (0344321) |
| 5 | Program title | Biological sciences |
| 6 | Program code | |
| 7 | Awarding institution | university of jordan |
| 8 | School | science |
| 9 | Department | biological sciences |
| 10 | Level of course | m.sc degree |
| 11 | Year of study and semester (s) | second semester 2018/2019 |
| 12 | Final Qualification | m.sc.in biological sciences |
| 13 | Other department (s) involved in teaching the course | <input type="text" value="none"/> |
| 14 | Language of Instruction | English |
| 15 | Date of production/revision | 2018/2019 |

16. Course Coordinator:

Office numbers, office hours, phone numbers, and email addresses should be listed.

Ibrahim Ibrahimi
librahimi46@gmail.com

17. Other instructors:

Office numbers, office hours, phone numbers, and email addresses should be listed.

None

18. Course Description:

As stated in the approved study plan.

The course is aimed at students in the master program in biological sciences.

The course begins with an introduction to metabolism including metabolic pathways, reaction mechanisms, experimental approaches to the study of metabolism and thermodynamics of phosphate compound and life. Metabolic pathways of the major biological compounds which includes carbohydrates, lipids, amino acids and nucleotides with emphasis on reaction mechanisms and enzyme catalysis will be discussed in detail focusing on energy metabolism and integration. The course will include consideration of recent literature on metabolism to be presented by course participants.

19. Course aims and outcomes:

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A- Aims: The course aims to train students in advanced metabolic processes as an introduction to scientific thinking and analysis of scientific results. Towards this aim, metabolic pathways will be described in a critical manner in an attempt to integrate the various pathways in a uniform manner. Special attention will be focused on reading, analyzing and presenting literature in the area of metabolic processes and pathways. A major aim of the course is to teach students how to relate the knowledge they gain from the lectures to recent experimental results in this field of advanced science.

~~B- Intended Learning Outcomes (ILOs): Upon successful completion of this course students will be able to~~

1. Read and critically follow and analyze metabolic pathways

2. Determine energy input and output of metabolic reactions

3. Derive the scientific names of enzymes catalyzing the various reactions in metabolic pathways

4. Describe the cofactors, metals and any special requirements for enzyme catalysis

5. Integrate the various metabolic processes in terms of common intermediates and reactants

20. Topic Outline and Schedule:

Topics:

1. Introduction to metabolism
2. Background
3. Experimental approaches to the study of metabolism
4. Carbohydrate breakdown and biosynthesis
5. Lipid breakdown and biosynthesis
6. First one hour exam
7. Amino acid breakdown and biosynthesis
8. Nucleotide breakdown and biosynthesis
9. Scientific paper and presentation
10. Energy metabolism, integration and specialization
11. Final exam

Marks:

First exam 30%

Midterm exam (scientific paper and presentation) 30%

Final exam 40%

Total: 100%

21. Teaching Methods and Assignments:

Development of ILOs is promoted through the following teaching and learning methods:

1. Giving formal lectures using the overhead projector and the white board
2. Preparing, presenting, in an analytical manner, scientific publications demonstrating the principles given in the lectures

22. Evaluation Methods and Course Requirement

Opportunities to demonstrate achievement of the ILOs are provided through the following assessment methods and requirements:

Open lectures in the form of interacting discussion in illustrations in which the students share in short and lengthy questions and answers. Selecting scientific papers related to lecture topics, critically reading and analyzing and presenting them

23. Course Policies:

A- Attendance policies: Taking attendance at every session

B- Absences from exams and handing in assignments on time:

must have a valid reason to give a makeup exam

C- Health and safety procedures: None

D- Honesty policy regarding cheating, plagiarism, misbehavior:

the number of students is 10, there is no chance of cheating or misbehavior.

E- Grading policy:

F- Available university services that support achievement in the course:

24. Required equipment: (Facilities, Tools, Labs, Training....)

Overhead projector
Board
Flumaster pens

25. References:

Required book (s), assigned reading and audio-visuals:

Text books:

1. Biochemistry, by m.campbell and s. farrel, sixth edition, 2009, Thomson learning, INC,USA
2. Biochemistry, by d.voet and j.voet, fourth edition, 2009, John Wiley and sons. New York, USA
3. Biochemistry, by g.zubay, sixth edition, 2008, W.H. Freeman publishers, Oxford, England

Recommended books, materials, and media:

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26. Additional information:

Name of Course Coordinator: prof. Dr. Ibrahim Ibrahimi. Signature: ----- Date: -----

Head of curriculum committee/Department: ----- Signature: -----

Head of Department: ----- Signature: -----

Head of curriculum committee/Faculty: ----- Signature: -----

Dean: ----- -Signature: -----



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