האוניברסיטה העברית בירושלים
THE HEBREW UNIVERSITY OF JERUSALEM

The Hebrew University of Jerusalem

Syllabus

medicinal natural products: a biosynthetic approach - 64304

Last update 03-09-2018

HU Credits: 2

Degree/Cycle: 2nd degree (Master)

Responsible Department: School of Pharmacy

Academic year: 0

Semester: 2nd Semester

Teaching Languages: Hebrew

Campus: Ein Karem

Course/Module Coordinator: Dr. Dmitry Tsvelikhovsky

Coordinator Email: dmitryt@ekmd.huji.ac.il

Coordinator Office Hours: Any day by the appointment via email

Teaching Staff:
Prof Dmitry Tsvelikhovsky

Course/Module description:
The course is used to outline the main building blocks and the basic construction mechanisms employed in the biosynthesis of natural products. Many of these fundamental principles should be familiar, having been met previously in courses dealing with the fundamentals of organic chemistry and biochemistry.
These principles are then seen in action as representative natural product structures are described during a course, which subdivided initially into areas of metabolism fed by the acetate, shikimate, mevalonate and deoxyxylulose phosphate pathways.
The course tries to include a high proportion of those natural products currently used in medicine, the major drugs that are derived from natural materials by semi-synthesis, and those drugs, which are structural analogues.
The course is also designed to be forward looking and gives information on possible leads to new drugs.

Course/Module aims:
The primary aim of the course is not to rely just on factual information, but to impart an understanding of natural product structures and the way they are put together by living organisms. Rationalization based on mechanistic reasoning is paramount. The sequences themselves are not important; the mechanistic explanations for the processes used are the essence.

Learning outcomes - On successful completion of this module, students should be able to:
Students should concentrate on understanding the broad features of the biosynthetic sequences, and absorb sufficient information to be able to predict how and why molecular intermediates/building blocks might be elaborated and transformed into the target natural product.

Attendance requirements(%):
no attendance requirements

Teaching arrangement and method of instruction: PPT Presentations

Course/Module Content:

1. Fatty acids
2. Terpenoids
3. Steroids
4. Alkaloids

Required Reading:
No.

Additional Reading Material:
1. Medicinal Natural Products: A Biosynthetic Approach"; Paul M Dewick (Third Eddition)

2. "Lehninger Principles of Biochemistry"; (Fourth Eddition)

3. "Organic Chemistry"; Clayden, Greeves, Waren (Second Eddition)

Course/Module evaluation:
End of year written/oral examination 100 %
Presentation 0 %
Participation in Tutorials 0 %
Project work 0 %
Assignments 0 %
Reports 0 %
Research project 0 %
Quizzes 0 %
Other 0 %

Additional information:
חובת קורסים:

1) כימיה אורגנית א׳
2) כימיה אורגנית ב׳

במסלולים לימודי כימיה או רוקחות