האוניברסיטה העברית בירושלים
THE HEBREW UNIVERSITY OF JERUSALEM

Syllabus

Sensing and Moving - 72960

Last update 25-04-2024

HU Credits: *2*

Responsible Department: *Life Sciences*

Academic year: *0*

Semester: *1st and/or 2nd Semester*

Teaching Languages: *Hebrew*

Campus: *E. Safra*

Course/Module Coordinator: *Michael Brandeis*

Coordinator Email: *michael.brandeis@mail.huji.ac.il*

Coordinator Office Hours:

Teaching Staff:
Prof Michael Brandeis

Course/Module description:
Sensing and moving are the two most basic capacities of all living creatures and

are essential for their interactions with their biotic and a-biotic environment. This online course is composed of videos filmed all over the world as well as of reading material, quizzes, experiments and active learning assignments. In the course we will learn about the impressive range of senses used by animals to perceive their electromagnetic (see), chemical (smell, taste) and mechanical (touch and hear) their external, as well as their internal environment. We will learn about the various forms of movement in water, on land and in the air used by the various groups from mosquitos to dinosaurs. We will learn about the evolution of sensing and moving from humble beginnings of unicellular organisms, all the way to remarkable migrations of birds and mammals. This course will enable students to know and evaluate their own senses in a wide context and see them with new eyes.

Course/Module aims:

Getting to know the senses and modes of movement of animals and humans

Learning outcomes - On successful completion of this module, students should be able to:

1. Understand how neurons work
2. Know how the eye and vision evolved and works
3. Understand the chemical senses olfaction and gustation
4. Understand mechanosensation
5. Know the different forms of movement in water, on land and in air and their evolution
6. Will be able to describe animal migrations and their significance
7. Will be able to discuss the interactions between sensing and moving

Attendance requirements(%):

It is mandatory to watch all online material

Teaching arrangement and method of instruction: Online course (MOOC)

Course/Module Content:

The living world, cells and neurons, neural transduction, the evolution of seeing, color vision, depth sensing, low light vision, olfaction, gustation, how to enjoy food, chemical communication, chemical sensing of the internal environment, mechanosensing, hearing, communication by sound, proprioception, moving in water, walking on land, walking on two legs, flight, human transport, migrations of butterflies, birds and mammals, navigation skills and senses, invasions, and more.

Required Reading:
The reading material on the site of the course

Additional Reading Material:

Grading Scheme:
Submission assignments during the semester: Exercises / Essays / Audits / Reports / Forum / Simulation / others 55 %
Mid-terms exams 45 %

Additional information: