Vector-borne diseases

Faculty

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Learning outcomes:

Vector-borne diseases rely upon organisms, named vectors, such as mosquitoes, ticks or sandflies that have an active role in the transmission of a pathogen from one host to the other. In the present course we aim to provide an environment for students to learn about the numerous arthropod-borne diseases that exist today and the multiple strategies that are being researched and conducted to diagnose, survey and control them with a special emphasis on understanding the complex interactions occurring between the pathogens and their hosts (either the vector or any other).

Syllabus:

1. Vectors and specifically those aspects of the biology of the vectors that affect disease transmission intensity and patterns
2. Parasite/host and vector interactions
3. Diversity of arthropod-borne diseases
4. Current and future methods of disease control
5. How vectors attempt to control pathogens
6. How microbes can control vectors

Course Structure:

This course integrates an introduction to fundamental concepts in Parasite/host and vector interactions with the amazing diversity of arthropod-borne diseases as well as with the biology of all the intervenients. Lectures are designed to take into account the complexity of the field. The course relies heavily on a problem-based teaching methodology. The presence of invited faculty members to present and debate cutting edge research completes this course. Student participation in lectures and discussion sessions is evaluated, as are their group projects (journal clubs and grant proposal exercise).

The teaching methodologies of this curricular unit are integrated with the intended learning outcomes in that they present an integrated view of human, vector and pathogen biology and the complex interactions between them. Additionally, students are also presented with topics that integrate different fields such as cell biology, immunology and physiology. Altogether these concepts will be extremely helpful to students when designing and conducting their own thesis research in any area of the biological sciences.

Main Resources