

INTERNATIONAL POST GRADUATE COURSE



NOVEMBER 2nd-6th 2015 SANTIAGO DEL ESTERO- ARGENTINA

Hydration in nanosystems of biotechnological interest.

Main purposes:

To discuss the state of the art of the role of water in the modulation of membrane properties in systems with biotechnological interests such as drug encapsulation and delivery, hormones interaction, enzyme activity, drug delivery cell and tissue preservation. Thermodynamic and structural methods will be used to analyze membrane model systems and membrane cells to understand stability and reactive properties in relation to hydric stress, osmotic shock, toxins actions, lipolytic enzymes, plant hormones and natural denaturalizers.

The Course will be composed by Introductory Classes and main lectures by specialists exposing in the Workshop on "*Membrane Hydration: A Challenge to Nanosystems*"

INTRODUCTORY CLASSES

Hydration of cells and tissues- Water structure in membranes- Functional role of interfacial water in Biology- Water and metabolic pathways -Anhydrobiosis-Methodologies.

LECTURES

Water and Lipid Bilayers, John Katsaras

Use of X-ray and neutron scattering methods with volume measurements to determine lipid bilayer structure and number of water molecules/lipid, Stephanie Tristram-Nagle.

Monitoring membrane hydration with 2-(dimethylamino)-6-acyl-naphthalenes fluorescent probes, Luis A. Bagatolli.

Forces between lipid bilayers – a theoretical overview and a look on methods exploring dehydration, Helge Pfeiffer.

Long-Range Lipid-Water Interaction as Observed by ATR-FTIR Spectroscopy, Zoran Arsov.

Aquaphotomics: Near Infrared Spectroscopy and water states in biological systems, Roumiana Tsenkova.

Water Hydration And Nanoconfined Water. Some Insights From Computer Simulations, Gustavo. A. Appignanesi.

Hydration in lipid monolayers: Correlation of water activity and surface pressure, E. Anibal Disalvo.

Water at Biological Phase Boundaries: Its Role in Interfacial activation of enzymes and metabolic pathways, Srinivasan Damodaran.

Anhydrobiosis: An Unsolved Problem With Applications in Human Welfare, John Crowe.

INFORMATION AND PREINSCRIPTION: reunionsab2015@gmail.com