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Bio and Medicinal Inorganic Chemistry

Instructor

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Teaching Assistant

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Department: Department of Inorganic and Physical Chemistry

Course Time: Mon., Wed., 2.30 - 4.00 PM

Lecture venue: IPC Lecture Hall

Detailed Course Page:

Announcements

Brief description of the course

This course is useful for Ph.D., integrated Ph.D. and undergraduate students with chemistry and biology majors who have desire to learn the role of metal ions in biological systems. The course will provide knowledge on various metalloproteins, metal-based drugs, various biological pathways involving metal ions. The students will be able to learn about various class of drugs that target metalloproteins.

Prerequisites

The students should have knowledge in basic inorganic chemistry, such as coordination chemistry, acid-base chemistry, ligand field theorey, and basic biochemistry, such as amino acids, proteins, enzymes, nucleic acids etc.

Syllabus

Principles of biochemistry and molecular biology, role of metal ions in biology, principles of coordination chemistry, amino acids and other bioligands, proteins â€“ secondary and tertiary structure, nucleic acids, iron proteins, iron transport, role of zinc in biology â€“ zinc enzymes, biological importance of nickel, copper proteins, redox reactions involving manganese, biological roles of vanadium, cobalt and molybdenum, basic

concepts in drug design, metals and health - metal-based drugs and mechanism of their action, metalloproteins as drug targets.

Course outcomes

The students would learn about the importance of metal ions in biological systems and how the metal ions mediate various biological functions such as metal-protein interactions, metal-nucleic acid interactions. They would also learn medicinally important metalloproteins, and development of drugs based on metalloproteins inhibition.

Grading policy

10% for assignments, 40% for mid-term, 50% for final

Assignments

Resources