

COURSE SYLLABUS

1. Identification

Code and title: QUP 404 - Medicinal Inorganic Chemistry

Professor: Legna A. Colina-Vegas and Wilmer Villarreal

Level: Master and Doctorate

Credit hours: 2

Revised: January_2021

2. Summary

Metalloenzymes and metalloproteins in the human body. Metal complexes in medicine. Metallodrugs for the diagnosis and treatment of cancer, as antiparasitic and antimycobacterial agents, and for arthritis treatment's.

3. Objective

Analyze the structure, reactivity and functioning of metalloproteins and metalloenzymes in the human body. Study the structure and interaction of coordination compounds in the diagnosis and treatment of several public health diseases.

4. Contents

- Metal ions constituents of proteins, enzymes and other biomolecules of human body: Structures, reactivity and functions.
- Historical perspective on the use of metal complexes in medicine.
- Metal complexes as imaging and diagnostic agents.
- Platinum-based metallodrugs in cancer chemotherapy: Structure, mechanism of action and adverse effects.
- Promising metallodrugs for cancer treatment: Structure, in vitro, in vivo tests, clinical trials and interaction with relevant biomolecules.
- Metallodrugs used as antiparasitic and antimycobacterial agents: Structure and biological targets.
- Gold compounds used for arthritis treatment's.
- Advances in the development of new metallodrugs.

5. Assessment

The evaluation will consist of the analysis of scientific articles, seminars and a written test. The student, who obtains a final grade of A, B or C, awarded as per the list below, will be considered approved:

A: grade equal to or above 9.0

B: grade equal to or above 7.5 and below 9.0

C: grade equal to or above 5.0 and below 7.5

D: grade below 5

FF: lack of frequency

6. Methodology



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Lectures, exercises lists, seminars and examinations.

7. Bibliography

- N.FARREL, Transition Metal Complexes As Drugs and Chemotherapeutic Agents, Kluwer Academic Publisher, England, 1989.
- S.J.LIPPARD, J.M.BERG, Principles of Bioinorganic Chemistry, University Science Books, USA, 1994.
- COWAN, J. A. Inorganic biochemistry: an introduction. 2nd. ed. New York: Wiley-VCH, 1997.
- SAHA, G. B. Fundamentals of nuclear pharmacy. 4th. ed. New York: Springer, 1998.
- TOMA, H. E. Química Bioinorgânica e Ambiental. 1ra ed. São Paulo: Blucher, 2015.
- References of specialized journals.