

Module Title:

Please provide a module title which should have only 30 characters including punctuation and spaces .

Development of metal compounds for inorganic medicinal chemistry purposes.

Module Code:

Please code according to the code QM-xx-xx, AM-xx-xx or DA-xx-xx

AM0313

Maximum Number of Students:

Please include any limitation on the number of students able to take the module.

50

Total ECTS Credits

This should be the sum of the credits for each of the semesters in which the module is to run.

2

Notional Learning Hours

(a) Contact Time - 10 h

(b) Private Study - 40 h

Format of Teaching:

Lectures 10 h

Laboratories or Practicals 0 h

Other 0 h

Teaching Strategy:

Please show how the contact hours are to be allocated in terms of the type of class involved.

Formal lectures in 60/90 min timetable and, depending on the number of students, seminars

Convener:

The name of the member of permanent staff responsible for the module.

Dinorah Gambino

University / Department:

The name of the University and Department responsible for the module.

University of Algarve

Faculdade de Ciências e Tecnologia

Language of Tuition:

Please state whether module is to be taught through the medium of English or another language. If bi-lingual please indicate % of each language

English

Module Description - The Purpose or Aims:

This should specify the purpose of the module where it fits into the programme specification and what it aims to provide. Please list the Aims in numerical order.

Aims:

1. To get a general background on metal coordination compounds and their current applications in medicinal chemistry
2. To introduce students on main biological targets for metal-based drugs
3. To get insight in the use of selected spectroscopic techniques like IR, Raman, NMR or others as tools for the characterization of metal coordination compounds.

Specific Learning Outcomes for this module: (contributing to general learning outcomes GLO 1 – GLO 10)

Learning Outcomes should provide statements which articulate what the student has achieved upon completion of the course. What will a student know, understand or be able to do?

At the end of the module the student is expected to be able to:

1. Understand the chemical nature of important metal-based drugs, their potential biological targets and the significance of metal nature and chemistry on their biological activity
2. Interpret simple spectroscopic results in order to get knowledge of chemical structure of metal compounds

Summary of Course Content:

This should be a summary paragraph of list of the topics to be covered by the module.

The module aims to involve the students in medicinal chemistry related work. It will involve: a description of nature of metal coordination compounds, medicinal chemistry aspects of bioinorganic chemistry including main therapeutic and diagnostic applications of inorganic compounds and a presentation of metals used for these purposes, some sample compounds and their main biological targets. A description of metal compounds used for chelating therapy, supplementation of essential elements, therapy and diagnosis will be included. In addition, using selected examples features of the application of some selected spectroscopic techniques to characterize metal coordination compounds will be briefly shown.

Transferable Skills Taught:

Please list in numerical order the key skills taught e.g. communication, information technology, interpersonal skills, teaching/study skills. Please relate these to benchmark statements.

1. interpretation of graphical or spectroscopic data
2. reading and comprehension of scientific manuscripts

Assessment Methods:

Details of assessment methods should include forms of assessment and the contribution of each to the summative assessment of the module. The relationship to the learning outcomes of the module should be explicit and the numbers of the various learning outcomes should be attached to the assessment methods listed. Please list in numerical order

Students will take one or two of three possible assessments:

1. Give a short seminar by a small group to the whole class related to a specific topic of the module. Probably discussion of a short simple paper could be included.
2. Short written presentation of a selected topic included in the bibliography, performed by a small group of students
3. Solve a simple spectroscopic example involving for instance IR results of a metal coordination compound.

Assessment Criteria:

Details of assessment methods should include forms of assessment and the contribution of each to the summative assessment of the module. The relationship to the learning outcomes of the module should be explicit and the numbers of the various learning outcomes should be attached to the assessment methods listed. Please list in numerical order.

Threshold: Describe some examples of metal-based drugs and interpret simple spectroscopy results

Good: For a given example of a metal-based drug, describe its action in detail, its biological targets and the relation between metal nature and its biological activity. Infer the chemical structure of a given metal compound from spectroscopy data.

Excellent: Fully understand and clearly describe the relation structure-reactivity in the action of metal-based drugs. Know about mechanisms of action of metal based drugs.

Resource Implications of Proposal and Proposed Solutions:

Details on any resources required and should be included. Please also list e.g core texts; recommended reading material; equipment; films etc.

Lecture powerpoint presentations and some short notes will be available for students.

Recommended reading: Available inorganic biochemistry book including medicinal chemistry topics and basic book including uses of spectroscopy in inorganic chemistry:

For example those available in the Library of the University of Algarve:

- Bioinorganic chemistry, Ivano Bertini
- Biological chemistry of the elements / the inorganic chemistry of life, J.J.R. Fraústo da Silva
- Principles of bioinorganic chemistry, Stephen J. Lippard
- Physical methods in bioinorganic chemistry / spectroscopy and magnetism

Pre-Requisites:

Any module(s) which must have been taken prior to the current module, or any specific background required to take this module.

Basic background in General Chemistry and very basic background on Inorganic Chemistry and on spectroscopy (IR, Raman, NMR).