



Universitat de Lleida

# DEGREE CURRICULUM **MEDICAL DOCUMENTATION AND INFORMATICS**

Coordination: TRUJILLANO CABELLO, JOSE JAVIER

Academic year 2022-23

## Subject's general information

|  |  |        |             |                  |
|--|--|--------|-------------|------------------|
| Subject name   | MEDICAL DOCUMENTATION AND INFORMATICS  |        |             |                  |
| Code   | 100511   |        |             |                  |
| Semester   | PRIMER QUADRIMESTRE  |        |             |                  |
| Typology   | Degree   | Course | Character   | Modality         |
|  | Bachelor's Degree in Medicine  | 1      | COMMON/CORE | Attendance-based |
| Course number of credits (ECTS)  | 6  |        |             |                  |
| Type of activity, credits, and groups                                    | Activity type  | PRAULA |             | TEORIA           |
|  | Number of credits  | 3      |             | 3                |
|  | Number of groups   | 6      |             | 1                |
| Coordination   | TRUJILLANO CABELLO, JOSE JAVIER  |        |             |                  |
| Department   | SURGERY  |        |             |                  |
| Teaching load distribution between lectures and independent student work | H Face-to-face 60 (or virtualized equivalents, depending on the evolution of COVID19)<br>H. No Presecials 90 (autonomous work, preparation of tests and works) |        |             |                  |
| Important information on data processing                                 | Consult <a href="#">this link</a> for more information.  |        |             |                  |
| Language   | Spanish and Catalan (defines by the professor: H taught primarily in Spanish, for example, although everyone can express in Catalan, orally and in writing)    |        |             |                  |
|  | The texts and materials can be in Catalan, Spanish, English or French.   |        |             |                  |

| Teaching staff                  | E-mail addresses          | Credits taught by teacher | Office and hour of attention |
|---------------------------------|---------------------------|---------------------------|------------------------------|
| BACH FORADADA, PILAR            | mariapilar.bach@udl.cat   | 3                         |                              |
| BAMALA I ZURIGUEL, JOSE PEDRO   | pedro.bamala@udl.cat      | 2                         |                              |
| BARBE ILLA, ESTHER              | esther.barbe@udl.cat      | 2                         |                              |
| ROCA ALVAREZ, ALBERTO C.        | albert.roca@udl.cat       | 7,5                       |                              |
| TRUJILLANO CABELLO, JOSE JAVIER | javier.trujillano@udl.cat | 6,5                       |                              |

## Subject's extra information

[Automatic translation: original in catalan]

The course aims to introduce students to the medical field by emphasizing the fact that medicine is both a science and an art, referring both to nature (being a kind of applied biology) and society (involving the interaction of subjects humans with changing roles). Assuming and taking into account this multiple character is fundamental to carry out the future professional task in a competent way. The subject introduces students to this complexity - which will be addressed throughout the career - addressing from a diachronic and comparative perspective the management of medical knowledge. This involves: 1) defining medicine and the medical system, as well as its object, from a perfined medicine and medical system, as well as its object, from a historical and comparative perspective; 2) present how scientific medical knowledge is historically constructed and compare it with other medical systems; 2) present how scientific medical knowledge is constructed and compare it with other medical systems; 3) to introduce the roles of expert (doctor and other professionals) and of the patient in the current and past health context, taking into account the prevailing medical pluralism; 4) present and learn to use the tools and sources of information that allow medical professionals to access the knowledge generated by contemporary scientific medicine and its clinical application; 5) understand and begin to use the codes, conventions and validation mechanisms of the transmission of scientific knowledge, taking into account the conditions of its clinical application. In order to transmit the contents that guarantee the acquisition of the competencies implicit in these 5 objectives, the subject is divided into two blocks: a first derived from the ancient History of Medicine as it had already been renewed at the University of Lleida (including sociology and anthropology and projecting on the present); a second derived from the old Medical Documentation, organized on the information management paradigm that wants to be the so-called Evidence-Based Medicine. The intention is, however, to do a single subject and deeply overlap the two blocks (which are not correlative) and their corresponding teaching staff.

Diachronic and comparative perspectives prevail given the reality of the field of health in the 21st century, characterized by medical pluralism. To understand this context (where future doctors will live and coexist) and to be

able to face its implications in an operational way, students must first approach the origins of current scientific medicine: what ideas and realities have been determining it until configuring the current constellation of competencies attributed to it. Second, he must understand why scientific medicine (or modern Western medicine or biomedicine) is not the only way that exists, nor are the concepts of health and disease unique; a priori and prejudices must be avoided when understanding the validity of a medical pluralism that presupposes the validity of the cultures to which they are associated, although they have often been considered anachronistic or underdeveloped.

On the other hand, it is necessary for students to be aware that the complex context of medicine requires medical professionals to acquire and continuously retrain a complex set of skills, which do not only refer to the intellectual understanding of reality. multitiered and multifaceted medical practice or the acquisition of more purely "biomedical" technical skills, but in order to intervene in the field of health, it is also necessary to acquire other personal skills such as emotional intelligence and what we might call scientific spirit. Some of these competencies are more transversal - they do not specifically define the profession - but they are very important for medical practice and their acquisition must be integrated into the field of health: an example is communication skills.

So, the course will follow this scheme, starting by explaining the current state of medicine from a historical and cultural point of view. We will then reflect on the characteristics that define a good medical professional, attitudes, aptitudes, emotions, intellectual abilities ... and once the transversal competences of the subject within the medical profession are located, we will develop them following the 'logical scheme of the scientific method.

The methodology to be used will be based on cooperative learning in non-contact activities and on the individual demonstration of skills (and not so much knowledge) in the practices of the subject that are carried out in the computer room.

## Learning objectives

### Block 1:

#### Cognitive objectives:

O.1.1. Recognize the complexity and variability of the object of medicine - both as a scientific discipline and as a professional practice - based on diachronic and intercultural reflection on the binomial of health and disease. (C.1.1)

O.1.2. From the concept of "medical system", identify the processes of validation of the knowledge (methodology) of biomedicine, through its historical evolution to the MBE. Compare them with other systems, offering an overview of the pluralism existing in the world of health. (C.1.3, C.1.2)

O1.3. Introduce the evolution of medical practice, taking into account the interactions involved (doctor-patient, doctor-doctor, doctor-political authorities, doctor-managers, doctor-other biomedical professionals, biomedical-non-biomedical healers ...), in its various aspects (therapeutic, legal, economic, social ...) and anticipating how they may develop in the future. (C.1.4, C.1.2)

#### Instrumental objectives:

O.1.4. Stimulate the ability to recognize the medical function in specific cases, based on the confluence of expectations, experiences and knowledge provided by the different actors involved (doctor, patient, health manager, non-biomedical healer), determined in turn by their context socioeconomic and cultural; it involves critically introducing the criteria established in the field of public health (in a broad sense). (C.1.1)

O.1.5. Develop the ability to critique the knowledge applied by the physician, learning to assess its scientific nature, but also its effectiveness even in the case of knowledge generated by medical systems and "invalidated" medical practices. (C.1.3, C.1.2)

O.1.6. Introduce the ability of future doctors to articulate in the world of health, both within the legal health system and beyond, from the patient's point of view. It is important to generate a flexible and adaptive attitude in the face of the prevailing pluralism and the multiplicity of factors involved in this field. (C.1.4)

O.1.7. Develop, from a group simulation, the ability to discuss and present scientific results (article, poster and exhibition), extracted from the corresponding information. (C.1.3)

O.1.8. Generate the horizon of a sense of belonging to a common field of health with other agents (biometrics proper, other public health professionals, scientists and industrialists, healers of other medical systems, self-help groups, patients with therapeutic initiative ...) which, despite their differences, share the common goal of healing, of looking after health; this feeling should facilitate the establishment of possible operational collaborations. (C.1.4)

From block 2:

- 0.2.1. Learning that the medical profession involves a constant need to update knowledges.
- 0.2.2. Know the main personal characteristics that can help excellence professional.
  - 0.2.2.1. Be able to explain in public, using scientific language, a biomedical topic (shared with block 1).
  - 0.2.2.2. Be able to explain in writing, using scientific language, a biomedical topic (shared with block 1).
- 0.2.3. Know the main systems for communicating scientific information between professionals.
- 0.2.4. Autonomously manage a personal computer when it comes to creating text documents, spreadsheets with linked calculations and presentations of scientific material.
- 0.2.5. Know how to use simple applications belonging to telemedicine.
- 0.2.6. Know how to apply the principles of the scientific method to the approach of a biomedical research simple (shared with block 1).
- 0.2.7. Know and be able to recognize in a scientific text the main characteristics of the clinical trial (shared with block 1).
- 0.2.8. Know the limitations of human thinking and reasoning when drawing conclusions of direct observation of facts, justifying the need for the scientific method (shared with block 1).
- 0.2.9. Understand and critically interpret scientific texts, knowing how to establish the level of evidence scientific of each (shared with block 1).
- 0.2.10. Know how to create a table of evidence appropriate to solving a question scientifically raised.
- 0.2.11. Know which evaluation criteria are best suited to the different types of table evidence.
- 0.2.12. Know how to calculate a weighted average based on source quality criteria.
- 0.2.13. Know how to write a scientific article following the criteria of unanimity in writing (Vancouver Style) (shared with block 1).
- 0.2.14. Know what biomedical information search and retrieval systems are available at the UdL digital library (shared instrumentally with block 1).
- 0.2.15. Apply Boolean logic correctly to the creation of a bibliographic search equation.
- 0.2.16. Understand the utility and locate terms correctly in a thesaurus (shared in

## Competences

Block 1: Historical and cultural perspective of medicine

Medicine is a practice that necessarily involves different actors: doctors, patients, managers, other health specialists, other medical systems ... This makes the field of health inevitably plural. This first block, which starts from the old name of "history of medicine" expanding it with the fields of medical anthropology and sociology, wants to account for this plurality, introducing students to the field of medicine in through three foci of reflection that compose three sections of the block: the object of the medicine, the medical matter and the medical praxis, that is to say, the conception of the binomial health and disease, the medical knowledge and the professional activity. Each section combines a historical perspective -projected towards the future- and a comparative cultural dimension. The specific competencies of this block are twofold, both cognitive and instrumental: that is, the principle that governs is to know to act. The specific basic competencies that should be acquired by studying the block are derived from those established in general (66, 67, 74) and could be summarized as follows:

- C.1.1) knowledge of some of the main conceptions of health and disease (of healthy and sick) that we find throughout the history of the world - in particular those that have most affected the evolution of scientific medicine - and ability to discriminate the medical function in the past and in the present (medical competences in the framework of the broad definitions of the WHO of health and disease, of the possibilities and constraints of the biomedical health system and of the current medical pluralism);
- C.1.2) knowledge of the diversity of medical systems, of their origins, with an introduction to the characteristics of some of the main "alternative medicines", as well as ability to appreciate the possibilities opened by these medical systems other than biomedicine. , through, among other things, a diachronic analysis of the evolution of medical pluralism (in which biomedicine is inserted);

C1.3) knowledge of the historical evolution of medical systems that have led to modern Western medicine (contrasting it with the trajectories of other medical systems), as well as ability to distinguish the genesis and uniqueness of the production of new knowledge in scientific medicine (historical bases of the methodology of scientific medical research and modern clinical decisions, MBE);

C1.4) knowledge of the main actors, instances and conditions that intervene in the field of health and in the medical act, knowledge of the evolution of their interactions and of the differences that it presents in different medical systems, knowledge of the history of public health, as well as the ability to grasp the complexity of the social framework for the application of medical practice and to position oneself in the most constructive way in the current context of interaction between patients, doctors, nurses, managers, medical industry ...

All four competencies are acquired through the follow-up of the classes with large group and the recommended readings (dossier + teaching references) and through the follow-up of a seminar (6 possibilities) of accompaniment to the preparation of a collaborative work. school. The evaluation of the competences is done through an individual written test and the presentation of a report of the collective work, in different deliveries guided by the teacher.

The achievement of these competencies entails the achievement of other transversal competences (referred to the comprehension, expression and application of new knowledge, as well as the organization of the same learning task), which are evaluated in the aspects of presentation of the work and of the evaluation of the comprehension of the questions of the test or of the notions and data involved in the work. Among these transversal competences, it is necessary to mean the C.2.2.2.

Block 2: Skills needed to practice Evidence-Based Medicine (MBE)

C.2.0.1. Know and critically evaluate and know how to use technologies and sources of clinical and biomedical information, to obtain, organize, interpret and communicate clinical, scientific and health information.

Objectives: To develop all these specific competencies, following the script of the MBE, grouped in the 4 sections explained below.

Activities: those of the following four subsections

Assessment: the tests of the following four subsections

C.2.0.2. Know and manage the principles of medicine based on (best) evidence

Objectives: to understand what it means to apply medicine applying the principles of MBE

Activities: those of the following four subsections

Assessment: the tests of the following four subsections

Block 2.1 Computer skills

C.2.1.1 Use a personal computer autonomously

Objectives To acquire skills in a set of computer procedures specific to research and documentation

## Subject contents

[Automatic translation: original in Catalan]

BLOCK 1 Historical and pluricultural perspective of medicine (medical pluralism) (H)

The course begins with a block that places medicine in context, as the result of a story that has shaped it for centuries, which explains what other traditional or alternative medicine is coexisting and finally, presents the plural context current, introducing future perspectives including evidence-based medicine (MBE).

There will be 6 thematic internship seminars, each associated with one of the internship groups. The seminars will be structured around the elaboration and presentation of the collective works. They will consist of a minimum of 5 sessions. The subject lines of each seminar and their calendar will be confirmed when beginning the course. The sessions could be VIRTUALIZED, depending on Covid19 conditions.

Part 1. Object of medicine: health and disease (5 hours master classes)

1. Concepts: "Ontologist" and "physiologist" tension in the definition of health and disease in various medical systems. Signs and symptoms, causes and experience.

2. History: Evolution of the conception of the binomial health and disease in the West.

3. Current perspectives: Normality and multi-etiology; public health and medicalization; plurality in conceptions of health and disease.

1st session of internship seminars (introduction, topics and working mechanism: 1-2 hours).

Part 2. The medical subject: the construction of knowledge in medicine (5 hours master classes)

1. Concepts: The medical act: diagnosis, prognosis and therapy. Singularity of biomedicine. Great Traditions and small traditions. Official medicine and folk medicine. Heteromedicine and alternative medicine.

2. History: The construction of biomedical knowledge in the West. The scientific method and its introduction in medicine. The problem of teleonomism.

3. Current perspectives: The synthesis of nineteenth-century medical mentalities. Medicine and science: the validation of medical knowledge. Laboratory, clinic and consultation. The clinical trial. MBE.

2<sup>a</sup> / 3<sup>a</sup> session of the practice seminars (presentation and discussion of texts).

Part 3. Medical practice: the medical profession (minimum 4 hours master classes)

1. Concepts: The professional models of medical systems: socializing model, proto-corporate model and corporate model. The fundamental binomial: medical / patient expert.

2. History: Evolution of the medical profession in the West. Professionalization and corporatism. The construction of the care system.

3. Current perspectives: Evolution of the doctor-patient relationship. The emergence of non-medical managers and health professionals. Alternative medicine and the plurality of supply in the world of health.

3<sup>a</sup>-5<sup>a</sup> sessions of internship seminars (exhibitions; could be extended if necessary). Group tutorials (in principle, for seminars).

## BLOCK 2 Competences needed to practice Evidence-Based Medicine (D)

Once the subject has been conceptually (longitudinally and transversally), we will present and develop the skills needed to carry out what the MBE implies, greatly simplifying: adopting a scientific strategy in making decisions and maintaining "professional competence" in the way more efficient. The competencies we will refer to will be grouped into 4 sections: scientific, computer, informational and personal.

## COMPETENCY NEEDS REGARDING THE MANAGEMENT OF KNOWLEDGE IN MEDICINE (1 hour classroom class + 2 hours practice)

Class 1 Organization of the second block of classes.

Practice 1 Practice on creating a professional model

Computer skills (1 hour classroom + 2 hours practice)

Class 2 Presentation of the computer skills to be achieved in the practices.

Practice 3 Practice on Basic Computing

EVIDENCE-BASED MEDICINE: A NEW MEDICAL KNOWLEDGE MANAGEMENT PARADIGM.

The MBA model: systematic review and application of scientific evidence (1 hour classroom)

Class 3 Need for scientific evidence in medicine

Scientific skills: validation of evidence (3 hours classroom class + 2 hours practice)

Class 4 Scientific competences I

Class 5 Scientific competences II

Practice 4 Presentation of the Design Activity.

Class 6 Scientific competences III Informational competences (8 hours classroom class + 10 practical hours)

Documentary sources

Class 7 Documentary typology

Class 8 The digital library of the UdL

Practice 5 Library of the University of Lleida

Document search in bibliographic databases

Class 9 Basic operation of bibliographic databases I

Class 10 Basic operation of bibliographic databases II

Practice 6 PubMed and work in the Activity

Practice 7 RefWorks

Practice 8 Scopus - Cochrane Library Plus

Practice 9 MBA. Evidence table

Dissemination of information in medicine

Class 11 Scientific communication standardization systems.



## Methodology

Block 1: Pr. Albert Roca (H)

| Activity       | Hours presentials students* | Hours autonomous work students | Hours professor |
|----------------|-----------------------------|--------------------------------|-----------------|
| "Master Class" | 15                          | 20                             | 15+30           |
| Practices      | 5-8                         | 22                             | 5+20            |
| Tutoring       | 3-5                         | 3                              | 6               |
| Evaluation     | 2                           | -                              | -               |
| TOTAL          | 25                          | 45                             | 76              |

(\*) Depending on the evolution of Covid19, contact hours could be reduced to the end of a complete virtualization.

As for practices, they could also be VIRTUALIZED.

The teaching modalities of each activity (face-to-face or virtual) and the calendar (distribution of the sessions, both history and documentation) will be confirmed in September, before the start of the course.

At the beginning of the course, the teacher will present a calendar-program where the distribution of attendance will be confirmed and the virtualized activities will be explained, if applicable, as well as the way to present and evaluate them. It will also indicate how to virtualize the tutorials if necessary.

Bloc 2: Pr. Javier Trujillano et al. (D)

| Activity         | Hours presentials students* | Hours autonomous work students | Hours professor |
|------------------|-----------------------------|--------------------------------|-----------------|
| "Master classes" | 15                          | 15                             | 15              |
| Practices        | 20                          | 27-30                          | 120             |
| Tutoring         | 0-3                         | 0-3                            | -               |
| Evaluation       | 2                           | -                              | -               |
| TOTAL            | 35                          | 40                             | 135             |

## Development plan

### CALENDAR

The schedule, and consequently the sequence of exposition of the programs could vary depending on the circumstances of the articulation of the two blocks. Modifications would be communicated to students in advance. At the start of the course, the face-to-face and virtual activities will also be confirmed, as well as their distribution (see Methodology). In principle, the first block will be taught the 2nd part of the week (Wednesday to Friday) and the second block the 1st (Monday to Wednesday):

The general timetables of the subject (classes, internships, exams) can be posted on the campus of the subject from the end of July (and in any case, will be accessible on the degree page), but in any case will be confirmed in the September, before classes begin.



The distribution of classes between Documentation (MBE) and History (the two pedagogically autonomous blocks into which the subject is divided) will be communicated before the start of the course, as well as the respective possible calendars and the respective teaching modalities (virtualization). It will be done through the virtual campus of the subject.

D: block class 2; H: block class 1; PS: practice of block 2; PH: block 1 practice; TD: block 2 tutoring; TH: block tutorial 1.

## Evaluation

|  |                                 |                | Type of avaluation<br>D       |  |
|--|---------------------------------|----------------|-------------------------------|--|
|  | <b>Theory</b>                   | 25 + 20        | 1 test escrita (written)      | 2 part written about contents and notions. |
|  | <b>Practices</b>                | (obliged) + 10 | Exercices                     | Exercice in informatic room)               |
|  | <b>Seminars</b>                 |                |                               | Presentation of activities                 |
|  | <b>Tutorials</b>                |                | Idem                          | Deeping or clarifying activities           |
|  | <b>No Presential activities</b> | 25 +20         | Collective work (H), or study | .  |

The total grade of the subject is broken down as follows:

Block 1: 50% (HISTORY)

Written test (test type and short questions): 25%

Work (collective): 25%

Internships and exhibitions may raise or round the grades, but will not be graded in themselves.

Block 2: 50% (DOCUMENTATION)

Written test (test type): 20%

Exercises done in the computer room 10%

Set of activities presented virtually 20%

|  |                                  |                    | Tipus<br>avaluació  |  |
|--|----------------------------------|--------------------|---|--|
|  | <b>Teoria</b>                    | 25 + 20            | 1 prova<br>escrita<br>(raonament)   | 2 Proves<br>escrites<br>sobre<br>continguts i<br>conceptes<br>teòrics.             |
|  | <b>Pràctiques</b>                | (obligatoris) + 10 | Exercicis<br>corresponents<br>a cada<br>pràctica<br>(virtualitzada<br>o no) | Exercici<br>pràctic aula<br>d'informàtica<br>(que cal<br>programar)                |
|  | <b>Seminaris</b>                 |                    |   | Orientats a<br>presentar<br>les activitats<br>que implica<br>cada<br>activitat     |
|  | <b>Tutories</b>                  |                    | Idem  | Orientades a<br>aprofundir<br>en les<br>diferents<br>activitats                    |
|  | <b>Activitats No Presencials</b> | 25 +20             | Treball<br>col·lectiu   | Elaboració i<br>presentació<br>d'activitats<br>(treball H + 4<br>de<br>diferents). |

La nota total de l'assignatura està descomposta de la següent manera:

Bloc 1: 50% (HISTORIA)

Prova escrita (tipus test i preguntes curtes): 25%

Treball (col·lectiu): 25%

Les pràctiques i exposicions podran pujar o rodonejar les notes, però no seràn qualificades en sí mateixes.

Bloc 2: 50% (DOCUMENTACIÓ)

Prova escrita (tipus test): 20%

Exercicis realitzats a l'aula d'informàtica 10%

Conjunt d'activitats presentades virtualment 20%

## Bibliography

The documentation and bibliography of the History of Medicine part will be indicated, and in some cases provided, by the teacher, at the beginning of the subject (virtual campus).

All the Documentation part bibliography is accessible at:

<http://biblioteca.udl.es/guide/guide.php?id=61> (specific resources for EBM)

<http://biblioteca.udl.es/guide/guide.php?id=30> (general thematic guides)