

**Medical Oncology**

Code: 103617  
ECTS Credits: 3

| Degree           | Type | Year | Semester |
|------------------|------|------|----------|
| 2502442 Medicine | OT   | 5    | 0        |
| 2502442 Medicine | OT   | 6    | 0        |

The proposed teaching and assessment methodology that appear in the guide may be subject to changes as a result of the restrictions to face-to-face class attendance imposed by the health authorities.

**Contact**

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**Use of Languages**

Principal working language: catalan (cat)  
Some groups entirely in English: No  
Some groups entirely in Catalan: Yes  
Some groups entirely in Spanish: No

**Teachers**

Juan Carles Galcerán  
Miquel Angel Seguí Palmer  
José Pablo Maroto Rey  
Ariadna Tibau Martorell  
Mireia Margeli Vila  
Maria Teresa Morán Bueno

**External teachers**

Cristina SUAREZ RODRIGUEZ  
Jose Luis MANZANO MOZO  
Rafael MORALES BARRERA  
Teresa RAMON y CAJAL ASENSIO

**Prerequisites**

Students should have acquired all the knowledge corresponding to the structure and function of the human organism.

In addition student should have a basis of knowledge and competence in Structural Pathology, Physiopathology, Semiology, Epidemiology and Surgery bases

Students will acquire the commitment to preserve confidentiality and professional secrets corresponding to the data they could have to access in relationship to their learning in healthcare departments. In addition they should maintain professional ethics in all their actions.

## Objectives and Contextualisation

Medical Oncology is a medical specialty, the objectives of which are the diagnosis, treatment and a comprehensive attention to the patients who are suffering cancer.

The oncological diseases are the second cause of mortality in developed countries. To have a solid knowledge of them will allow the future graduates to have competence for attending these patients including different issues related to the diagnosis and treatment, side effects derived from therapy, symptom control and also some aspects related to prevention.

## Competences

### Medicine

- Communicate clearly, orally and in writing, with other professionals and the media.
- Demonstrate understanding of the causal agents and the risk factors that determine states of health and the progression of illnesses.
- Demonstrate understanding of the manifestations of the illness in the structure and function of the human body.
- Demonstrate understanding of the structure and function of the human organism in illness, at different stages in life and in both sexes.
- Demonstrate, in professional activity, a perspective that is critical, creative and research-oriented.
- Establish a diagnostic approach and a well thought-out strategy for action, taking account of the results of the anamnesis and the physical examination, and the results of the appropriate complementary tests carried out subsequently.
- Formulate hypotheses and compile and critically assess information for problem-solving, using the scientific method.
- Indicate the basic diagnosis techniques and procedures and analyse and interpret the results so as to better pinpoint the nature of the problems.
- Indicate the most suitable treatment for the most prevalent acute and chronic processes, and for the terminally ill.
- Maintain and sharpen one's professional competence, in particular by independently learning new material and techniques and by focusing on quality.
- Obtain and prepare a patient record that contains all important information and is structured and patient-centred, taking into account all age and gender groups and cultural, social and ethnic factors.
- Perform a general and a system-by-system physical examination appropriate to the patient's age and sex, in complete and systematic way, and a mental evaluation.
- Perform the basic practical procedures of examination and treatment.
- Recognise and take action in life-threatening situations and others that require an immediate response.
- Use information and communication technologies in professional practice.

## Learning Outcomes

1. Categorise emergency situations in accordance with the available indices of seriousness.
2. Communicate clearly, orally and in writing, with other professionals and the media.
3. Demonstrate, in professional activity, a perspective that is critical, creative and research-oriented.
4. Describe the basic radiological and anatomopathological characteristics of infections and the factors that favour their development.
5. Describe the diagnostic process based on the different radiological densities.
6. Describe the general and local factors that affect the development of diseases.
7. Describe the main diagnostic and therapeutic techniques performed in the hospital service corresponding to the subject.
8. Describe the pain mechanisms and other common symptoms in the terminal phase and establish a treatment plan.
9. Establish a diagnostic and therapeutic approach in emergencies.
10. Establish clear and effective communication with patients and their family-members.

11. Formulate hypotheses and compile and critically assess information for problem-solving, using the scientific method.
12. Identify images showing normality.
13. Identify the biochemical, cytogenetic and molecular biology markers applied to clinical diagnosis of importance in diagnostic imaging: radiological-anatomopathological.
14. Identify the cardiovascular risk factors and perform the actions of primary and secondary prevention.
15. Identify the guiding symptoms of the most common neoplasms.
16. Identify the most common neoplasms from the warning signs.
17. Identify the radiological and anatomopathological alterations of the commonest diseases in the different body systems, at different stages in life and in both sexes.
18. Interpret the most specific images in the most common pathologies.
19. Justify the complementary examinations that can lead to the diagnosis of a systemic disease from the visualisation, diagnostic suspicion and confirmation of a particular dermatosis.
20. Maintain and sharpen one's professional competence, in particular by independently learning new material and techniques and by focusing on quality.
21. Relate clinical findings to those of imaging tests.
22. Understand the manifestations of the main pathologies on the structure and function of the human body.
23. Use information and communication technologies in professional practice.

## Content

Subject 1: Introduction to the Oncology. Epidemiological principles of cancer

- Cancer as a systemic disease
- Epidemiology of cancer
- Early diagnosis
- Prevention: primary and secondary prevention

Subject 2: Biological basis of neoplasms (I):

- Molecular principles of malignant transformation
- Regulatory mechanisms of genome reparation
- Role of oncogen and suppressor genes
- Cellular growth factors
- Cellular cycle
- Angiogenesis process

Subject 3: Biological basis of neoplasms (II):

- Signalling pathways
- Application to cancer therapy and targeted therapy
  - EGFR and HER2
  - PI3K
  - MAPK (RAAS and RAF)
  - ROS and ALK translocations
  - PARP inhibitors
  - Cdk4/6 inhibitors

Subject 4: Diagnosis of oncological diseases (I): Natural history and dissemination patterns

- Dissemination patterns
- Staging systems
- General symptoms in advanced disease
- Signs and symptoms of the most frequent neoplasms
- Complementary exams in staging

#### Subject 5: Diagnosis of oncological diseases (II): Biomarkers

- Biomarker definition
- Genomic platforms
- Massive sequencing
- Liquid biopsy
- Plasmatic tumoural markers

#### Subject 6: Hereditary cancer

- Principles of familiar cancer and principal hereditary syndromes
- Genetic Counselling basis

#### Subject 7: Principles of cancer treatment (I)

- Type of treatment: curative or palliative
- Principles of surgery
- Principles of radiotherapy
- Clinical research methodology: methods to evaluate efficacy in advanced disease. Evaluation of response - RECIST 1.1

#### Subject 8: Principles of cancer treatment (II)

- Chemotherapy
  - Pharmacological basis
  - Concept of dose intensity and dose density
  - Groups of cytostatic agents and mechanism of action
  - Toxicity and side effects
- Endocrine therapy principles
  - Drugs and indications

#### Subject 9: Principles of cancer treatment (IV): Immunotherapy

- Principles of the immune system in cancer
- Principal utilities in cancer treatment:
  - Melanoma
  - Lung cancer
  - Urological tumours

Subject 10: Attention to the most frequent neoplasms (I): Lung Cancer

- Epidemiology and risk factors
- Diagnosis and staging
- Treatment options: a multidisciplinary approach
- Prognosis
- Follow-up

Subject 11: Attention to the most frequent neoplasms (I): Colon Cancer

- Epidemiology and risk factors
- Diagnosis and staging
- Treatment options: a multidisciplinary approach
- Prognosis
- Follow-up

Subject 12: Attention to the most frequent neoplasms (I): Breast Cancer

- Epidemiology and risk factors
- Diagnosis and staging
- Treatment options: a multidisciplinary approach
- Prognosis
- Follow-up

SESP I: Oncological Emergencies: description from clinical cases

- Febrile neutropenia
- Hypercalcemia
- Medullar compression syndrome
- Endocraneal hypertension

SCC I - Discussion of clinical cases

- Prostate cancer
- Ovarian cancer

SCC I - Discussion of clinical cases

- Central nervous system tumour
- Melanoma

## **Methodology**

For this course the Department designated professors as coordinators in each Teaching Unit are as follows:

| UDHSP   | UDHVVH  | UDGTiP   | UDPT   |
|---|---|--|--|
| Agustí BARNADAS<br><a href="mailto:abarnadasm@santpau.cat">abarnadasm@santpau.cat</a> | Joan CARLES<br><a href="mailto:icarles@vhio.net">icarles@vhio.net</a> | Mireia MARGELI<br><a href="mailto:mmargeli@iconcologia.net">mmargeli@iconcologia.net</a> | Miquel Angel SEGUI<br><a href="mailto:msegui@tauli.cat">msegui@tauli.cat</a> |
|   |   | Teresa MORAN<br><a href="mailto:mmoran@iconcologia.net">mmoran@iconcologia.net</a>       |  |

- Theory (TE): 12 hours

Group dimension: 1 Group. Number of scheduled sessions: 12

- Specialized seminars: 1 hour

Group dimension: 1 group- Number of scheduled sessions: 1

- Clinical Case seminars: 2 hours

Group dimension: 20 people attending.

Number of scheduled sessions: 2

- Care Practicum without guidelines (PRASS)

Groups of 2-4 students

Scheduled hours: 15 hours (3 hours every day for one week)

- Autonomous work (50-55% of total time)

. Reading of texts and articles

. Study to assimilate contents

. Essay preparation and presentation based on clinical cases

- Evaluation (5% of total time: 3.75 hours)

In the current exceptional circumstances, at the discretion of the teachers and also depending on the resources available and the public health situation, some of the theoretical classes, practicals and seminars organized by the Teaching Units may be taught either in person or virtually.

Annotation: Within the schedule set by the centre or degree programme, 15 minutes of one class will be reserved for students to evaluate their lecturers and their courses or modules through questionnaires.

## Activities

| Title                         | Hours | ECTS | Learning Outcomes                                 |
|-------------------------------|-------|------|---|
| Type: Directed                |       |      |   |
| Clinical cases seminars (SCC) | 2     | 0.08 | 22, 5, 16, 15, 17, 18, 19, 21                     |
| Specialized seminar (SEM)     | 1     | 0.04 | 1, 22, 5, 8, 7, 9, 13, 16, 15, 17, 18, 20, 19, 21 |

|  |      |      |   |
|--|------|------|---|
| Theory classes (TE)  | 12   | 0.48 | 1, 22, 5, 6, 8, 4, 9, 14, 13, 16, 15, 17, 19    |
| Type: Supervised   |      |      |   |
| Care Practicum without guidelines                            | 15   | 0.6  | 22, 2, 5, 6, 10, 13, 16, 15, 12, 17, 18, 19, 21 |
| Type: Autonomous   |      |      |   |
| Essay preparation, personal study, reading and comprehension | 41.5 | 1.66 | 3, 11, 20, 23                                   |

## Assessment

The theoretical assessment consists of 50 multiple choice questions with five possible options in which only one for each question is valid.

The practical assessment consists of 20 multiple choice questions which five possible options in which only one for each question is valid.

The theoretical and practical exams are carried out at two different moments.

Each student will deliver an essay with the description of a clinical case experienced first-hand during the rotation at the end of practicum.

This essay will have the following parts: a) Introduction; b) Description of the clinical case; c) Identification of problems that motivated the admission to the hospital; d) Treatment strategy; e) Evolution; f) Discussion with five references.

Full attendance to the seminars is obligatory

Students who have not passed the continuous evaluation of the subject can resit the exam which will be announced in advance notice

Students who do not sit the exams (Theoretical and Practicum) and also the practicum will be considered as Not Evaluated and lose their right of registration for that year's course.

## Assessment Activities

| Title                                 | Weighting | Hours | ECTS | Learning Outcomes               |
|---------------------------------------|-----------|-------|------|---------------------------------|
| Attending theory classes and seminars | 10%       | 0     | 0    | 2, 7, 10                        |
| Essay presentations                   | 15%       | 0     | 0    | 3, 11, 20, 23                   |
| Practicum evaluation                  | 30%       | 1.5   | 0.06 | 5, 8, 4, 12, 18, 19, 21         |
| Theory evaluation                     | 45%       | 2     | 0.08 | 1, 22, 6, 9, 14, 13, 16, 15, 17 |

## Bibliography

- Cancer. Principles & Practice of Oncology. Edit: Vivent T. DeVita Jr., Samuel Hellman, Steven A. Rosemberg. 11th edition Lippincott Williams Wilkins, a Wolters Kluwer Business. Philadelphia 2019. ISBN: 9781496394637.
- Manual Washington Oncologia. Ramaswamy G and Morgensztem D eds. Lippincott Williams and Wilkins. Filadelfia 2016. ISBN 9788416353460

- Harrison Principios de Medicina Interna. Jameson JL, Fauci AS, Kasper DL, Hauser SL, Longo DL, Loscalzo J, eds. 20th edition. Mc Graw-Hill-Interamericana. Madrid 2019. ISBN: 9781466264864

- Oxford textbook of Oncology. Kerr DL, Haller DG, van de Velde C, Baumann M, eds. 3rd edition. Oxford Academic Press. Oxford 2018. ISBN 9780198832003.

- Karp Biología Celular y Molecular. Iwassa J, Marshall W, eds. 8th edition. Mc Graw Hil. Ciudad de México 2019. ISBN: 9781456269227

- Oncología Clínica. Cruz Hernández JJ, Rodríguez CA, Del Barco E, Fonseca E, eds. 6th edition. Barcelona: Elsevier, 2018. ISBN 978-84-9113-282-0

- Websites of interest:

National Cancer Institute (USA): [www.cancer.gov](http://www.cancer.gov)

Sociedad Española de Oncología Médica (SEOM): [www.seom.org](http://www.seom.org)

American Society of Clinical Oncology (ASCO): [www.asco.org](http://www.asco.org)

European Society for Medical Oncology(ESMO): [www.esmo.org](http://www.esmo.org)

Journals of Interest

- Journal of Clinical Oncology at <http://jco.org>
- Annals of Oncology at <http://academic.oup.com/annonc>
- Nature Reviews Clinical Oncology at <https://www.nature.com/content/nrco>
- Nature Reviews in Cancer at <https://www.nature.com/content/nrc>
- Lancet Oncology at <https://www.thelancet.com/oncology>

## Software

Non specific computerized programme is required