**University of Zagreb School of Dental Medicine**

**Integrated undergraduate and graduate university study of Dental Medicine**

**Academic year 2022/2023**

**Name of course**

Oncology and radiotherapy

**Department/Chair where the course is taught**

Chair of Oncology and Nuclear Medicine

**Adress of the Department/Chair**

Univerity hospital center Sestre milosrdnice, Vinogradska 29, HR-10000 Zagreb

**Status of the course**

Obligatory course

**Year of the study**

4th year

**Semester**

Winter semester

**ECTS-a points**

2 ECTS

**Lecturers in charge**

Prof. Ana Fröbe, PhD, MD, afrobe@irb.hr

**Other lecturers**

Dr. sc. Marin Prpić, marin.prpic@kbcsm.hr

**Number of teaching hours**

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Winter semester** | **Summer semester** | **Overall (both semesters)** |
| **Lectures** | 15 | - | 15 |
| **Seminars** | - | - | - |
| **Practicals** | 15 | - | 15 |
| **Overall** | 30 | - | 30 |

1 academic hour = 45 minutes

**Type of practicals**

Clinical practical in oncology and radiotherapy

**Course aims:**

Classes of Course “Oncology and Radiotherapy” for the students of integrated study of Dental Medicine (University of Zagreb) are held at the fourth year (VII semester). To better understand the curriculum of the course, students must have prior knowledge of the basics of internal medicine, pathology and radiology.

During the course, emphasis is put on epidemiology, diagnosis and prevention in the early stages of the disease, modalities of treatment, palliative care, and psychological aspect of treatment of malignant diseases, practical skills and diagnostic procedures in order to acquire basic knowledge of oncology.

The didactic part of the course is composed of theoretical lectures from individual chapters of oncology science. The practical part of the course is conducted in the form of presentations of patients with cancer who are treated in a modern oncology center. In this way, through the direct contact, students are provided with the most important knowledge in diagnosis, procedures and side effects of treatment for patients with solid malignant tumors.

Systemic cancer treatment consists of antitumor and supportive care. Antitumor treatment includes chemotherapy, endocrine therapy, immunotherapy, biologic therapy and isotope therapy. Within the practical part of the course, dental students gain knowledge in the field of systemic treatment, meet cancer patients, many new drugs that affect the oral cavity and learn to recognize the side effects of chemotherapy, immunotherapy and radiotherapy.

Students are introduced to the modern radiotherapy techniques aimed at better local control of the disease, while successfully protecting the surrounding healthy tissue. They are presented the entire procedure of carrying out radiotherapy with an external beam, from CT simulation, contouring of the target volume, as well as organs from risk, development of a radiotherapy plan, and the implementation of radiotherapy itself. They are also introduced to brachytherapy, a form of radiotherapy in which the source of radiotherapy is brought in close proximity to the tumor and to the advantages of such treatment.

Within the practical part of the course, patients with the most common forms of tumors are presented, as well as their diagnosis and treatment. Attention is focused on the procedures related to the prevention of malignant diseases, the mechanisms of occurrence, and the importance of certain carcinogens in the development of cancer. The teaching emphasizes the division of head and neck tumors as well as the importance of recognizing these tumors in clinical practice (eg, some sub-localizations of tumors, clarified the difference between HPV-positive and HPV-negative tumors, etc.).

**Expected Learning Outcomes**

**Knowledge**

1. Classify the changes typical for healthy and malignant cells and tissues.

2. Assess the difference between healthy, inflammatory and malignant tissue in the oral cavity or on the skin of the head and neck area.

3. Distinguish the procedures related to proving suspicious lesions (changes for which you are not sure) on the mucous membrane of the oral cavity or the skin of the head and neck area.

4. Define antitumor treatment (which includes chemotherapy, endocrine therapy, and immunotherapy, application of biological therapy, radiotherapy and isotope treatment)

5. Describe the process of diagnosis and treatment of cancer patients with malignant diseases

6. Describe modern radiotherapy techniques aimed at better local control diseases while at the same time more successfully protecting the surrounding healthy tissue.

**Skills**

7. Planning the treatment of changes in the oral cavity that have occurred or will occur as a result of the treatment of a malignant disease in general, which does not originate from the oral cavity.

8. Recognize the side effects of chemotherapy, immunotherapy, as well as radiotherapy.

 9. Recognize the most significant tumors in clinical practice (eg, individual sub-localizations of tumors, clarified the difference between HPV-positive and HPV-negative tumors, etc.).

10. Develop an algorithm for optimal treatment of patients suffering from malignant disease of certain tumor sites, whose consequences are possible to occur in the oral cavity

**Content of the course**

**Lectures**

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|  | **Lectures - topics in winter semester** | **Number of teaching hours** |
|  | Epidemiology of malignant diseases | 1 |
|  | Oncologic propedeutic | 1 |
|  | Radiotherapy | 1 |
|  | Basics of medical physics in radiotherapy | 1 |
|  | Head and neck tumors I  | 1 |
|  | Head and neck tumors II | 1 |
|  | Systemic oncologic treatment | 1 |
|  | Tumors of the skin | 1 |
|  | Gynaecological tumors | 1 |
|  | Tumors od the central nervous system | 1 |
|  | Tumors of the urinary systems | 1 |
|  | Lung tumors | 1 |
|  | Tumors od the gastrointestinal system | 1 |
|  | Tumors of the breast | 1 |
|  | Palliative care and quality of life in oncology | 1 |
|  | **Lectures - topics in summer semester** | **Number of teaching hours** |
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1 academic hour = 45 minutes

**Seminars**

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|  | **Seminars - topics in winter semester** | **Number of teaching hours** |
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|  | **Seminars - topics in summer semester** | **Number of teaching hours** |
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1 academic hour = 45 minutes

**Practicals**

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|  | **Practicals - topics in winter semester** | **Number of teaching hours** |
|  | Anamnesis | 1 |
|  | Patiens with breast cancer | 1 |
|  | Patient with rectal tumor  | 1 |
|  | Patient with central nervous system tumor | 1 |
|  | Patient with head and neck cancer | 1 |
|  | Patient with gynaecological cancer | 1 |
|  | Use of radiotherapy | 1 |
|  | Use of brachytherapy | 1 |
|  | Application of systemic oncological treatment | 1 |
|  | Patient with urinary bladder cancer | 1 |
|  | Patient with bladder cancer | 1 |
|  | Patient with skin cancer | 1 |
|  | Patient with gastric cancer | 1 |
|  | Patient with metatstatic tumor | 1 |
|  | Repetition | 1 |
|  | **Practicals - topics in winter semester** | **Number of teaching hours** |
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1 academic hour = 45 minutes

**Responsibilities of Students**

Students are required to come to class and fulfill entrusted tasks.

**Monitoring student progress during the lesson**

Attending of students to class is recorded,

Practicals are performed in smaller groups, and activity of students is recorded

The knowledge is recorded by oral exam

**Types of examinationa and examination dates**

The final exam is oral

**Dates of the exam**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Extraordinary exam dates\* | Regular exam period WINTER\*\* | Extraordinary exam dates\* | Regular exam period SUMMER\*\* | Regular exam period AUTUMN\*\* |
| November | December | January | February | April | May | June | July | August | September |
| DATES |  |  | **30.1.-3.2.23** | **6.-10.2.23****13.-17.2.23****20.-24.2.23** |  |  | **12.-16.6.23****19.-23.6.23****26.-30.6.23** | **3.-7.7.23****10.-15.7.23** | **28.8.-1.9.23** | **4.-8.9.23****11.-15.9.23****18.-22.9.23** |

\*outside of the regular examination periods, it is possible to propose one examination period per month; Heads of subjects in the last year of studies, which take place in rotation exams, can also plan immediately after the rotation ends; so that students do not miss classes, the exam must be held at a time when students taking the exam do not have classes

\*\* should be proposed at least 2 examination dates per month; When scheduling students for the exam, subject managers are obliged to check in the ISVU system whether students have possible collisions with other exams on the day they plan to take their exam

**Obligatory literature**

All Lectures and Practicals are available in system for Academic Year 2022/2021

**Additional literature**

Winquist E, Agbassi C, Meyers BM, Yoo J, Chan KKW, the Head and Neck Disease Site Group. Systemic therapy in the curative treatment of head and neck squamous cell cancer: a systematic review. J Otolaryngol Head Neck Surg. 2017; 46: 29. Published online 2017 Apr 4. doi: 10.1186/s40463-017-0199-

Johnson DE, Burtness B, Leemans R, Yan Lui VW, Bauman JE, Grandis JR. Head and neck squamous cell carcinoma. Nat Rev Dis Primers. Author manuscript; available in PMC 2021 Mar 10

Prpic M**,** Frobe A, Zadravec D, Pazanin L, Jaksic B, Bolanca A, Kusic Z. Initial symptomatic pituitary metastasis in patient with prostate foamy gland carcinoma: tailoring the safe and effective therapy. Acta Clin Croat 2015; 54:243-248

Prpic M, Kust D, Kruljac I, Kirigin LS, Jukic T, Dabelic N, Bolanca A, Kusic Z. Prediction of radioactive iodine remnant ablation failure in patients with differentiated thyroid cancer: a cohort study of 740 patients. Head Neck. 2017 Jan;39(1):109-115. doi: 10.1002/hed.24550. Epub 2016 Jul 26.

Kust D, Prpić M, Kruljac I, Bolanča A, Kusić Z. Tyrosine kinase inhibitors and hypothyroidism – an intriguing link. Endocr oncol metab 2016 June 15;2(2):102-113. DOI:10.21040/eom/2016.2.2.3

Prpić M, Purgar N, Kust, D, Suton P, Mirošević G, Fröbe A**.** Hyponatremia caused by water intoxication and malnutrition in a patient with metastatic oropharyngeal carcinoma**.** Endocr oncol metab 2017 Jun; 3(2):56-60. DOI:10.21040/eom/2017.3.2.4