Title: Introduction to radiobiology - Ionizing radiation/Radiobiologia
Lecture language: **English**

Semester: **winter 2026**
ECTS: 2 points
Module content **Lectures (10 h)**
Responsible teacher: **Paweł Kukołowicz, Prof.**

Module summary:
The lecture will cover: 1) the history of the discovery of ionising radiation, 2) the radiobiological principles underlying the use of ionising radiation, 3) basic information on methods for measuring ionising radiation, 4) the use of ionising radiation in medicine: applications in diagnostics and therapy, 5) radiation accidents.

05.11.2026
10.00 a.m. 1. Discovery of ionising radiation. (2h)

12.11.2026
10.00 a.m. 1. Introduction to radiobiology. (1h)
2. Basic clinical radiobiology. (1h)

19.11.2026
10.00 a.m. 1.Basic clinical radiobiology. (1h)
2. Introduction to dosimetry of ionizing radiation. (1h)

26.11.2026
10.00 a.m. 1. Ionizing radiation in therapy. (1h)
2. Ionizing radiation in diagnostic. (1h)

03.12.2026
10.00 a.m. 1. Ionizing radiation as a cause of secondary cancers. (1h)
2. Radiation accidents. (1h)

Teaching methods and techniques:
Lectures: The topics presented in the lecture are shown in the form of a multimedia presentation in Teams application

The conditions obtaining the acknowledge for the classes, including the rules of exam retaking, as well as the conditions of admission to the exam:
The lecture will be preceded by a test designed to assess your knowledge.
In order to pass the subject a positive grade must be obtained from a test on the entirety of the theoretical material.

Participation rules in classes:
- Attendance is mandatory: **Yes**
- Participation rules in classes: Students that take part in the classes will learn subsequent topics according to the syllabus of the class. Students should systematically ask questions. Recording of the lecture can only be done with the approval of the lecturer.

The method and mode of making up for the absences
If the requirements are met for obtaining a passing grade, the student is required to independently catch up with the material. If he/she fails to do so, he/she must obtain a positive grade on a test that pertains to the material discussed during his absence.

Prerequisites and additional requirements:
Without requirements

Recommended literature and teaching resources:

1. W. Ahrens, I. Pigeot – Eds. Handbook of Epidemiology. Second Edition.
2. Nowotwory złośliwe w Polsce 2017 http://onkologia.org.pl/publikacje/
3. https://www.cdc.gov/csels/dsepd/ss1978/index.html
4. https://publications.iarc.fr/Non-Series-Publications/Other-Non-Series-Publications/Cancer-Epidemiology-Principles-And-Methods-1999
5. https://www.cdc.gov/publichealth101/epidemiology.html
6. Schüz J, Espina C, Villain P, et al. European Code against Cancer 4th Edition: 12 ways to reduce your cancer risk. Cancer Epidemiol. 2015;39 Suppl 1:S1-S10. doi:10.1016/j.canep.2015.05.009 https://pubmed.ncbi.nlm.nih.gov/26164654/
7. Leon ME, Peruga A, McNeill A, et al. European Code against Cancer, 4th Edition: Tobacco and cancer. Cancer Epidemiol. 2015;39 Suppl 1:S20-S33. doi:10.1016/j.canep.2015.06.001 https://pubmed.ncbi.nlm.nih.gov/26272517/

Scientific publications to the topic of the lecture:

1. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5879496/
2. https://cebp.aacrjournals.org/content/25/1/16.long
3. https://pubmed.ncbi.nlm.nih.gov/28988610/?from_term=cancer+mortality+trends+in+eur ope&from_pos=2
4. https://pubmed.ncbi.nlm.nih.gov/26818619/?from_term=cancer+mortality+trends+in+eur ope&from_pos=1
5. https://pubmed.ncbi.nlm.nih.gov/23485231/?from_term=cancer+mortality+trends+in+eur ope&from_pos=3
6. https://pubmed.ncbi.nlm.nih.gov/28379885/?from_term=cancer+mortality+trends+in+eur ope&from_pos=4
7. https://pubmed.ncbi.nlm.nih.gov/32321669/?from_term=cancer+mortality+trends+in+eur ope&from_sort=date&from_pos=2

Additional information:
None