SUBJECT TEACHING GUIDE

(SYLLABUS)

FACULTY:

FACULTY OF MEDICINE……..….

SPECIALIZATION: …MEDICAL…….…….…….…….

COURSE PROFILE: ……GENERAL ACADEMIC……...…….…….….
(ogólnoakademicki / praktyczny)

SPECIALITY:……-……..……..

TYPE: … DOCTORAL STUDIES …….……

1. **Subjects name: ENDOCRINOLOGY OF AGEING**

2. **Subjects ID:**

3. **Type: BASIC**
   (podstawowy, kierunkowy, zawodowy)
4. **Course aims:**

Global demographic changes have become an increasingly serious problem in recent years, especially in highly developed countries. These changes are characterized by a gradually declining birth rate. This, coupled with significant improvements in healthcare systems, leads to a growing number of elderly people. This situation raises serious concerns about public finances, including pensions and rising healthcare and social security costs. In 1950, approximately 200 million people lived worldwide over the age of 60. Currently, this number has reached 500 million, and it is estimated that this number will at least double in the near future. Furthermore, an increase in the number of people of very advanced age, i.e., over 80 years old is projected. Longer lifespans also increase the risk of cancer and other age-related diseases. This fact necessitates a thorough understanding of the mechanisms of ageing and the role of various factors (including endocrine factors) in regulating this complex process.

5. **Form of the classes: ONLINE**
   (stacjonarne/niestacjonarne)

6. **Term: Duration of the doctoral studies: I-IV year**

7. **Types of educational activities:**

SEMINARS – 15 h.

(wykłady, ćwiczenia, zajęcia praktyczne, laboratoryjne, fakultatywne i inne)

8. **ECTS credits :**
   (oparta na nakładzie pracy wymaganym do osiągnięcia efektów kształcenia z uwzględnieniem zarówno zajęć wymagających bezpośredniego udziału nauczyciela akademickiego tj. wykładów, ćwiczeń, zajęć praktycznych, laboratoryjnych, fakultatywnych i innych oraz innych form pracy studenta)

	Average number of hours for implementing a form of activity per semester		ECTS points	Comments
Contact hours with the teacher Self-study 10 h	Seminars 15	15	1	Attendance is mandatory. Course credit is based on an oral test and confirmed attendance at the seminars.
	In total	**15 (100 %)**	1	
ECTS points			**1**	

9. Name and surname of the person conducting the classes:

Professor Adam Gesing, MD, PhD (Head of Department of Endocrinology of Ageing, Medical University of Lodz)

10. Prerequisites:

(np. w odniesieniu do przedmiotów realizowanych na pierwszym roku studiów może to być: treść przedmiotów ogólnych na poziomie szkoły ponadgimnazjalnej, w odniesieniu do przedmiotów realizowanych na kolejnych semestrach należy wskazać inne przedmioty pełniące rolę wstępnych)

Knowledge of anatomy and physiology sufficient to understand the content discussed.

11. Learning activities and teaching methods:

(przekaz słowny, panel, prezentacja multimedialna, dyskusja, pokaz, praca grupowa, rozwiązywanie przypadków etc.)

Multimedia presentations, discussion.

12. Course unit content:

(opis w punktach szczegółowych treści nauczania na wykładach, ćwiczeniach, zajęciach praktycznych, laboratoryjnych, fakultatywnych i innych)

- Hormonal changes occurring during the ageing process in women and men;
- Population studies on ageing processes;
- Do shorter people live longer?... And dwarf mice?... – animal experimental models used in longevity studies;
- "Record holders" for longevity among humans and in the plant and animal kingdoms;
- The importance of the axis: growth hormone (GH) - insulin-like growth factor type I (IGF-I) in lifespan regulation;
- The role of calorie restriction (CR) in extending lifespan – truth or myth?...;
- The role of adipose tissue (including visceral fat) and the consequences of its removal in lifespan regulation; could visceral fat tissue, under certain conditions, not be so "bad" after all?...;
- Therapeutic management (to treat or not to treat?) for GH deficiency related to age or caused by organic causes (e.g., growth hormone deficiency), as well as for subclinical thyroid dysfunction;
- Senolytics/senomorphics/senostatics – a way to eternal youth?

13. Learning outcomes:

(opis wiedzy, umiejętności i kompetencji społecznych, których nabycie/opanowanie jest zamierzonym efektem kształcenia skorelowanym z określonymi w sylabusie celem i treściami kształcenia np :

- *Wiedza: nabycie teoretycznej/praktycznej wiedzy z zakresu….*
- *Umiejętności: np. nabycie umiejętności analizy…., nabycie umiejętności interpretacji…, nabycie umiejętności operowania podstawowymi terminami/pojęciami z zakresu…, nabycie umiejętności posługiwania się terminologią z zakresu…, nabycie umiejętności rozwiązywania problemów…, nabycie umiejętności klasyfikacji…., nabycie umiejętności posługiwania się aktami prawnymi z zakresu…*
- *Kompetencje społeczne: np. umiejętność przekazywania wiedzy i umiejętności innym osobom, sprawność komunikowania się, umiejętność określenia priorytetów służąca do realizacji zadań, gotowość do uczenia się przez całe życie, umiejętność współdziałania z innymi w roli zarówno członka jak i lidera zespołu…)*

Knowledge:

Learning about the changes in the endocrine system that occur in women and men during the ageing process, including hormonal deficiencies of estrogen, testosterone, dehydroepiandrosterone (DHEA), growth hormone (GH), and insulin-like growth factor type I (IGF-I), leading to the development of menopause, andropause, adrenopause, and somatopause, respectively (describing the clinical symptoms associated with these hormonal deficiencies). Describing other endocrine disorders that occur during ageing, including those affecting the thyroid gland, with particular emphasis on subclinical changes (e.g., subclinical hypothyroidism and subclinical hyperthyroidism). To acquire knowledge of the causes and regulatory mechanisms of the ageing process, the important role of the somatotropin axis and its key players – GH and IGF-I – in lifespan regulation, and the role of gene polymorphisms in this process [e.g., genes for the thyrotropin (TSH) receptor or the IGF-I receptor]; describing mitochondrial DNA polymorphisms that lead to extended lifespan. Learning about experimental animal models used in longevity studies, as well as population-based studies on aging processes. Acquiring knowledge regarding the importance of calorie restriction in the diet, as well as the role of visceral adipose tissue (and the consequences of its removal) in the context of the impact of both these experimental interventions on extending lifespan. Presentation of differences in therapeutic management (to treat or not to treat?), including cases of age-related GH deficiency or caused by organic causes, as well as cases of subclinical thyroid dysfunction. To acquire knowledge of senolytics/senomorphics/senostatics – a new therapeutic procedure that could potentially extend lifespan.

Skills:

Acquiring the ability to use terminology relevant to ageing research and anti-ageing medicine. Acquiring the ability to properly interpret the results of hormonal diagnostic tests observed in humans during the ageing process and their differences in men and women. Ability to provide therapeutic management of endocrine disorders during ageing.

Social competences:

Acquiring awareness of the proper prevention, diagnosis, and treatment of endocrine disorders, particularly in ageing individuals. Acquiring the ability to convey knowledge about the endocrine determinants of the ageing process to patients. Developing an appreciation of the importance of research in endocrinology (including the endocrinology of ageing). Developing a willingness to pursue lifelong learning and the ability to collaborate with others, both as a member and leader of a team. Developing self-assessment skills. Developing the ability to communicate effectively interdisciplinarily with physicians of other specialties to ensure the most appropriate treatment for patients with endocrine disorders.

14. Required and recommended learning resources:

Selected scientific articles on the topics discussed are available from the seminar leader.

15. Assessment methods:

Credit for the course will be awarded based on an oral test and verified attendance.

Rules for making up absences from classes:

An unexcused absence from a class must be made up by attending a different exercise session or - if making up the class is not possible - by delivering a presentation on a pre-agreed topic demonstrating the achievement of the established learning outcomes; the presentation must be in PowerPoint or another multimedia format.

16. Additional information:

Available at the email address: adam.gesing@umed.lodz.pl

17. Signature:

I hereby state that the content of the curriculum included in the syllabus below is the result of my individual work completed as part of work contract/cooperation resulting from a civil law contract, and that author rights to this title are not the property of a third party.

18. Dean's signature:
19. Date: 11.09.2026