

课程详述

COURSE SPECIFICATION

以下课程信息可能根据实际授课需要或在课程检讨之后产生变动。如对课程有任何疑问，请联系授课教师。

The course information as follows may be subject to change, either during the session because of unforeseen circumstances, or following review of the course at the end of the session. Queries about the course should be directed to the course instructor.

1.	课程名称 Course Title	核医学 Nuclear Medicine
2.	授课院系 Originating Department	医学院 School of Medicine
3.	课程编号 Course Code	MED423
4.	课程学分 Credit Value	2
5.	课程类别 Course Type	专业选修课/ Major Elective Courses
6.	授课学期 Semester	秋季/ Fall
7.	授课语言 Teaching Language	中英双语 English & Chinese
8.	授课教师、所属学系、联系方式 (如属团队授课, 请列明其他授课教师) Instructor(s), Affiliation & Contact (For team teaching, please list all instructors)	李晓峰, 南方科技大学附属第一医院, linucmed@hotmail.com Xiaofeng Li, 1st Affiliated Hospital of SUSTech, linucmed@hotmail.com
9.	实验员/助教、所属学系、联系方式 Tutor/TA(s), Contact	王博, 医学院, wangb7@sustech.edu.cn Bo Wang, School of Medicine, wangb7@sustech.edu.cn
10.	选课人数限额(可不填) Maximum Enrolment (Optional)	

11. 授课方式 Delivery Method	讲授 Lectures	习题/辅导/讨论 Tutorials	实验/实习 Lab/Practical	其它(请具体注明) Other (Please specify)	总学时 Total
学时数 Credit Hours	32				32
12. 先修课程、其它学习要求 Pre-requisites or Other Academic Requirements	无/NA				
13. 后续课程、其它学习规划 Courses for which this course is a pre-requisite	待定/To be determined				
14. 其它要求修读本课程的学系 Cross-listing Dept.	待定/To be determined				

教学大纲及教学日历 SYLLABUS

15. 教学目标 Course Objectives

本课程是面向临床专业本科生的选修课，旨在让学生了解核医学在临床工作中的具体应用。掌握一定的物理、化学、医学以及计算机技术等相应的理论知识。因此，主要以介绍、掌握核医学各种诊断和治疗技术的基本原理和临床适应症为主，以利于学生在将来走向临床工作时能够合理地利用核医学诊断、治疗技术。

This course is an elective course for undergraduate students majoring in clinical medicine and aims to give students an understanding of the specific application of nuclear medicine in clinical work. Master certain theoretical knowledge of physics, chemistry, medicine and computer technology. Therefore, it is mainly to introduce and master the basic principles and clinical indications of various diagnostic and therapeutic techniques in nuclear medicine, in order to facilitate students to rationally use nuclear medicine diagnostic and therapeutic techniques when moving towards clinical work in the future.

16. 预达学习成果 Learning Outcomes

1. 了解核医学的基本理论、基本原则和基本方法；
2. 了解核医学在临床工作中的具体应用。

1. Understand the basic theory, basic principle and basic method of nuclear medicine;
2. Understand the specific application of nuclear medicine in clinical work.

17. 课程内容及教学日历（如授课语言以英文为主，则课程内容介绍可以用英文；如团队教学或模块教学，教学日历须注明主讲人）

Course Contents (in Parts/Chapters/Sections/Weeks. Please notify name of instructor for course section(s), if this is a team teaching or module course.)

1. 核医学绪论

Introduction to Nuclear Medicine

核医学定义、内容，核医学特点，核医学发展与现状。

Definition and content of nuclear medicine; Characteristics of nuclear medicine; Development and current situation of nuclear medicine.

2. 核医学物理基础

Fundamentals of Nuclear Medicine Physics

同位素、核素、同质异能素，核衰变，射线与物质的相互作用。

Isotopes, nuclides, homoenergetics; Nuclear decay; Interaction between rays and substances.

3. 核医学仪器

Nuclear Medicine Instruments

放射性探测仪器的基本原理， γ 相机，SPECT与SPECT/CT，PET与PET/CT、PET/MR，脏器功能测定仪，放射性计数测量仪器，放射性药物合成、分装仪。

Basic principles of radioactivity detection instruments; γ -camera; SPECT and SPECT/CT; PET and PET/CT; PET/MR; Organ function tester; Radioactivity counting measurement instruments; Radiopharmaceutical synthesis and dispensing instruments.

4. 放射性药物

Radiopharmaceuticals

放射性药物性能与类别，放射性核素的来源，放射性药物的制备与质量控制，放射性药物使用，新型放射性药物临床转化。

Performance and category of radiopharmaceuticals; Source of radionuclides; Preparation and quality control of radiopharmaceuticals; Use of radiopharmaceuticals; and Clinical translation of new radiopharmaceuticals.

5. 核素示踪与核医学显像技术

Radionuclide Tracing and Nuclear Medicine Imaging Techniques

放射性核素示踪技术，放射性核素显像技术。

Radionuclide tracer technology; Radionuclide imaging technology.

6. 核医学分子影像

Nuclear Medicine Molecular Imaging

分子影像与核医学分子影像的概念，核医学分子影像的应用实例，核医学分子影像与影像组学。

The concept of molecular imaging and molecular imaging in nuclear medicine; Application examples of molecular imaging in nuclear medicine; Molecular imaging and imaging genomics in nuclear medicine.

7. 体外分析技术

In Vitro Analytical Techniques

放射性标记分析技术，非放射性标记免疫分析技术，其它体外分析方法，体外分析实验室质量控制，常用体外分析实验室管理方法简介，体外分析的临床应用。

Radiolabeled analysis technology; Non-radiolabeled immunoassay technology; Other in vitro analysis methods; Quality control of in vitro analysis laboratories; Introduction of commonly used in vitro analysis laboratory management methods; Clinical application of in vitro analysis.

8. 计算机技术在核医学中的应用

Application of Computer Technology in Nuclear Medicine

核医学设备中的计算机系统，核医学图像处理，与核医学相关的医院数据系统，辅助诊断技术与人工智能诊疗。

Computer systems in nuclear medicine equipment; Nuclear medicine image processing; Hospital data systems related to nuclear medicine; Auxiliary diagnostic technologies and artificial intelligence diagnosis and treatment.

9. 辐射防护

Radiation Protection

作用于人体的电离辐射，辐射剂量，电离辐射生物效应，辐射防护，核医学辐射防护。

Ionizing radiation acting on human body; Radiation dose; Biological effect of ionizing radiation; Radiation protection; Radiation protection in nuclear medicine.

10. 肿瘤显像

Tumor Imaging

肿瘤影像的基本概念及最新研究进展，核医学在肿瘤影像中的作用。

The basic concept and latest research progress of tumor imaging, and the role of nuclear medicine in tumor imaging.

11. 心血管系统，神经系统，骨骼系统，内分泌系统，泌尿系统，消化系统，呼吸系统，造血与淋巴系统

Cardiovascular System, Nervous System, Skeletal System, Endocrine System, Urinary System, Digestive System, Respiratory System, Hematopoietic and Lymphatic System

各系统中核医学检查项目的方法，基本技术及注意事项。

Methods, basic techniques and precautions of nuclear medicine examination items in various systems.

12. 核素治疗

Radionuclide Therapy

腔内治疗、间质治疗、皮肤敷贴治疗、放射免疫治疗、骨转移癌、血液病等核素治疗方法。

Radionuclide therapy methods such as endovascular therapy, interstitial therapy, skin application therapy, radioimmunotherapy, bone metastases, and hematological diseases.

章节 Section	教学内容 Teaching Contents	学时 Lecture Hours
1	核医学绪论 Introduction to Nuclear Medicine	2
2	核医学物理基础 Fundamentals of Nuclear Medicine Physics	2
3	核医学仪器 Nuclear Medicine Instruments	2
4	放射性药物 Radiopharmaceuticals	2
5	核素示踪与核医学显像技术 Radionuclide Tracing and Nuclear Medicine Imaging Techniques	2
6	核医学分子影像 Nuclear Medicine Molecular Imaging	2
7	体外分析技术 In Vitro Analytical Techniques	2

8	计算机技术在核医学中的应用 Application of Computer Technology in Nuclear Medicine	2
9	辐射防护 Radiation Protection	2
10	肿瘤显像 Tumor Imaging	2
11	心血管系统 Cardiovascular System	2
12	神经系统, 骨骼系统 Nervous System, Skeletal System	2
13	内分泌系统, 泌尿系统 Endocrine System, Urinary System	2
14	消化系统, 呼吸系统 Digestive System, Respiratory System	2
15	造血与淋巴系统 Hematopoietic and Lymphatic System	2
16	核素治疗 Radionuclide Therapy	2

18.教材及其它参考资料 Textbook and Supplementary Readings

教材:

《核医学》，第9版，主编：王荣福、安锐，人民卫生出版社出版

课程评估 ASSESSMENT

19. 评估形式 Type of Assessment	评估时间 Time	占考试总成绩百分比 % of final score	违纪处罚 Penalty	备注 Notes
出勤 Attendance		10		
课堂表现 Class Performance				
小测验 Quiz				
课程项目 Projects				
平时作业 Assignments		30		
期中考试 Mid-Term Test				
期末考试 Final Exam		60		
期末报告				

Final Presentation

其它（可根据需要
改写以上评估方
式）

**Others (The
above may be
modified as
necessary)**

20. 记分方式 **GRADING SYSTEM**

- A. 十三级等级制 **Letter Grading**
 B. 二级记分制（通过/不通过） **Pass/Fail Grading**

课程审批 REVIEW AND APPROVAL

21. 本课程设置已经过以下责任人/委员会审议通过

This Course has been approved by the following person or committee of authority

本课程已经医学院教学副院长张文勇教授审核通过。