

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	诺贝尔奖与医学 Nobel Prize in Medicine
2.	授课院系 Originating Department	医学院 School of Medicine
3.	课程编号 Course Code	MED120
4.	课程学分 Credit Value	2
5.	课程类别 Course Type	任选课 Free Elective
6.	授课学期 Semester	春季 Spring 、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)	聂晓伟, niexw@sustech.edu.cn , 医学院 Xiaowei Nie, niexw@sustech.edu.cn , School of Medicine
9.	实验员/助教、所属学系、联系方式 Tutor/TA(s), Contact	待公布 To be announced
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	30			Presentation 2	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	无/NA				
14. 其它要求修读本课程的学系 Cross-listing Dept.	无/NA				

教学大纲及教学日历 SYLLABUS

15. 教学目标 Course Objectives

本课程通过介绍诺贝尔生理学或医学奖的重要工作，讲授相关医学及生物学突破性进展的相关知识和技术，培养学生的科学思维和创新能力，提高他们的批判性思维、分析问题和解决问题的能力，以及科学研究的基本方法。同时激发学生对医学和科学研究的兴趣和热情，引导学生形成正确的科学价值观和伦理观。通过案例分析、讨论和报告活动，使学生能够将理论知识应用于实际问题的解决，提高学生们的自主探索和分析能力。

This course introduces significant work related to the Nobel Prize in Physiology or Medicine, teaching relevant knowledge and techniques about breakthroughs in medicine and biology. It aims to cultivate students' scientific thinking and innovation abilities, enhance their critical thinking, problem analysis, and problem-solving skills, as well as the basic methods of scientific research. At the same time, it stimulates students' interests and passion for medical and scientific research, guiding them to form correct scientific values and ethical views. Through case analysis, discussions, and reporting activities, students are enabled to apply theoretical knowledge to the solution of practical problems, improving their independent exploration and analytical abilities.

16. 预达学习成果 Learning Outcomes

1. 理解医学知识突破性进展及其重大意义：理解重要诺贝尔生理学或医学奖的历史和重要性，掌握获奖者的研究成果原理及其在医学和生物学领域的贡献。

Understanding the Breakthroughs and Significance in Medical Knowledge: Comprehend the history and importance of the Nobel Prize in Physiology or Medicine, grasp the principles of the awardees' research findings and their contributions to the fields of medicine and biology.

2. 了解医学领域相关重大科学技术：明确重大科学技术在科学研究中的作用，及其在科学研究中的重大意义。

Being Familiar with Major Scientific and Technological Advances in the Medical Field: Clarify the role and significance of major scientific and technological advances in scientific research.

3. 培养科学探索精神与创新思维：学习诺贝尔奖重大发现的创新思维和科研方法，激发学生对科学研究的兴趣和热情，培养学生科学探索精神。

Cultivating a Spirit of Scientific Exploration and Innovative Thinking: Learn about the innovative thinking and research methods behind significant Nobel Prize discoveries, stimulate students' interest and enthusiasm for scientific research, and foster a spirit of scientific exploration.

4. 跨学科知识整合：诺贝尔奖的研究成果往往涉及多个学科领域，鼓励学生学会整合不同学科的知识，形成跨学科的视角。

Integration of Interdisciplinary Knowledge: Nobel Prize-winning research often spans multiple disciplines, encouraging students to learn how to integrate knowledge from different fields and develop

an interdisciplinary perspective.

5. 塑炼思维与表达能力: 通过课程讨论、撰写报告等形式, 帮助学生提高科学分析和表达能力, 学会如何清晰地传达科学思想。

Developing Thinking and Expression Skills: Through course discussions and report writing, help students improve their scientific analysis and expression skills, learning how to clearly convey scientific ideas.

6. 养成终身学习的态度: 课程旨在培养学生的自主学习能力和终身学习的态度, 鼓励学生在医学和生命科学领域持续探索和学习。

Cultivating Attitude Towards Lifelong Learning: The course aims to cultivate students' ability for self-directed learning and an attitude of lifelong learning, encouraging them to continue exploring and learning in the fields of medicine and life sciences.

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.)

本课程通过讲解“诺贝尔生理学或医学奖”的重大革命性成果、社会价值及发展动态, 培养学生的医学创新的能力和兴趣, 以及增强学生紧跟医学前沿的能力。课程还将介绍领域内突破性的创新技术, 讲解这些技术在科研工作中应用, 为提升学生以后的科研能力提供理论支持。

This course aims to cultivate students' abilities and interests in medical innovation, as well as their ability to keep up with the forefront of medical research, by discussing the significant revolutionary achievements, social value, and development trends of the "Nobel Prize in Physiology or Medicine." The course will also introduce groundbreaking innovative technologies within the field, explain their application in scientific research, and provide theoretical support to enhance students' future research capabilities.

教学日历(Course Contents):

- L1 课程介绍+胰岛素的发现 Course Introduction + Discovery of Insulin
- L2 血型的发现 Discovery of Blood Types
- L3 染色体遗传理论 Theory of Chromosome Inheritance
- L4 维生素 K 的发现 Discovery of Vitamin K
- L5 青霉素的发现及传染病治疗 Discovery of Penicillin and Treatment of Infectious Diseases
- L6 辅酶 A 与三羧酸循环 Coenzyme A and the Citric Acid Cycle
- L7 心脏导管术的诞生 The Birth of Cardiac Catheterization
- L8 核酸的分子结构 Molecular Structure of Nucleic Acids
- L9 神经细胞间的化学反应 Chemical Reactions Between Neuronal Cells
- L10 神经末梢部位的传递机制 Mechanisms of Transmission at Neuronal Terminals
- L11 前列腺素的发现和研究进展 Discovery and Research Progress of Prostaglandins
- L12 单克隆抗体的诞生 The Birth of Monoclonal Antibodies
- L13 全新的蛋白致病因子—朊蛋白 A New Type of Protein Pathogen—Prions
- L14 基因调节的重要性 The Importance of Gene Regulation
- L15 幽门螺旋杆菌的发现 Discovery of Helicobacter pylori
- L16 核糖核酸的干扰机制 RNA Interference Mechanism
- L17 宫颈癌和艾滋病研究进展突破 Breakthroughs in Research on Cervical Cancer and AIDS
- L18 端粒和端粒酶 Telomeres and Telomerase
- L19 试管受精技术 In Vitro Fertilization Technology
- L20 先天免疫与获得性免疫 Innate and Adaptive Immunity
- L21 细胞核移植与克隆 Nuclear Transfer and Cloning

- L22 “囊泡转运”的奥秘 The Mystery of Vesicular Transport
 L23 寄生虫克星 Nematode Killers
 L24 细胞自噬 Cellular Autophagy
 L25 昼夜节律的控制 Control of Circadian Rhythms
 L26 细胞如何感知和适应氧气供应 How Cells Sense and Adapt to Oxygen Supply
 L27 丙型肝炎病毒的发现 Discovery of the Hepatitis C Virus
 L28 人体温度和触觉感受器 Human Body Temperature and Tactile Receptors
 L29 mRNA 疫苗研究进展 Research Progress on mRNA Vaccines
 L30 microRNA 的发现及其作用 Discovery and Function of microRNA
- PRE1 诺贝尔生理学或医学奖预测
 PRE1 Prediction of the Nobel Prize in Physiology or Medicine
- PRE2 诺贝尔生理学或医学奖预测
 PRE2 Prediction of the Nobel Prize in Physiology or Medicine

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

1. 《诺奖往事——诺贝尔生理学或医学奖史话》. 张铭著. 北京科学出版社, 2018
2. 《现代科学的最高奖赏: 诺贝尔奖的故事》, 陶晓华, 2012年, 吉林科学技术出版社
3. 诺贝尔奖网站 <https://www.nobelprize.org/>

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	随堂	20		
课堂表现 Class Performance	随堂	20		
小测验 Quiz				
课程项目 Projects				
平时作业 Assignments				
期中考试 Mid-Term Test				
期末考试 Final Exam				
期末报告	期末	60		

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

教学负责人签字：
日期：

