

## 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.	<b>课程名称 Course Title</b>	现代疫苗学 Modern Vaccinology
2.	<b>授课院系 Originating Department</b>	医学院
3.	<b>课程编号 Course Code</b>	MED230
4.	<b>课程学分 Credit Value</b>	3
5.	<b>课程类别 Course Type</b>	专业选修课 Major Elective Courses
6.	<b>授课学期 Semester</b>	秋季 Fall
7.	<b>授课语言 Teaching Language</b>	中英双语 English & Chinese
8.	<b>授课教师、所属学系、联系方式 Instructor(s), Affiliation &amp; Contact</b> (For team teaching, please list all instructors)	周晓辉, 医学院, <a href="mailto:zhouxh@sustech.edu.cn">zhouxh@sustech.edu.cn</a> Zhou xiaohui, School of Medicine, <a href="mailto:zhouxh@sustech.edu.cn">zhouxh@sustech.edu.cn</a>
9.	<b>实验员/助教、所属学系、联系方式 Tutor/TA(s), Contact</b>	待公布 To be announced
10.	<b>选课人数限额(可不填) Maximum Enrolment (Optional)</b>	

11. 授课方式 Delivery Method	讲授 Lectures	讨论	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	42	6			48
12. 先修课程、其它学习要求 Pre-requisites or Other Academic Requirements					
13. 后续课程、其它学习规划 Courses for which this course is a pre-requisite					
14. 其它要求修读本课程的学系 Cross-listing Dept.					

### 教学大纲及教学日历 SYLLABUS

#### 15. 教学目标 Course Objectives

掌握疫苗的基本概念与发展历史；掌握疫苗如何在人体中诱导免疫反应的过程，包括模式识别受体的功能、先天免疫的激活以及 T 细胞和 B 细胞的免疫反应。掌握疫苗的开发与生成以及其效果评价；掌握疫苗接种法规与条例；掌握常见细菌与病毒疫苗的种类；掌握疫苗研发（包括新冠疫苗，mRNA 疫苗等）最新进展。

Master the basic concepts and development history of vaccines; master the process of how vaccines induce immune responses in the human body, including the function of pattern recognition receptors, activation of innate immunity, and immune responses of T cells and B cells. Master the development and production of vaccines and their effectiveness evaluation; master vaccination laws and regulations; master the types of common bacterial and viral vaccines; master the latest developments in vaccine research and development (including the COVID vaccine)

#### 16. 预达学习成果 Learning Outcomes

- a) 了解免疫和防护的基本知识感染。
- b) 了解不同类型的疫苗及其应用。
- c) 获得对疫苗风险/益处的一般理解
- d) 了解终身接种疫苗的必要性

- a) Understand the fundamental knowledge of immunity and protection of infections.
- b) Understand the different types of vaccines and their applications.
- c) Acquire general understanding of risks/benefits of vaccines

d) Acquire an awareness of the need for life-long vaccination in the protection of society as a whole.

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.)**

疫苗学的历史和演变; 新疫苗发现、开发和许可的过程和关键步骤; 疫苗的免疫学以及免疫计划设计和监测中的关键组成部分; 不同类型的疫苗效果和保护; 病原体和人群遗传多样性对疫苗开发的影响以及如何评估它们对疫苗开发的联合影响疫苗安全问题的类型和机制以及研究疫苗安全性的方法。

history and evolution of vaccinology; the process and key steps in the discovery, development and licensing of new vaccines; key components in the immunology of vaccines and in the design and monitoring of immunization program; different types of vaccine efficacy and protection; The impact of pathogen and population genetic diversity on vaccine development and how to assess their combined impact on vaccine development, types and mechanisms of vaccine safety issues, and methods to study vaccine safety

Section	Topic	Hours
1	疫苗概念及发展历史(Introduction of Vaccine)	3
2	疫苗开发途径(Vaccine Development)	3
3	疫苗免疫机制(Mechanisms of Vaccine immunity)	3
4	疫苗研制与生产(Vaccine production)及疫苗佐剂(Adjuvant)	3
5	实地参观疫苗生产企业, 了解疫苗生产过程	3
6	基于微生物和基于材料的疫苗输送系统(Microbial-based vaccine delivery system)	3
7	获得许可的人类疫苗(Approval of human vaccine)	3
8	疫苗监管(Regulation of Vaccine)	3
9	疫苗的临床评价 (Clinical evaluation of vaccine)	3
10	疫苗安全性(Safety of Vaccine)	3
11	全球疫苗计划(Vaccine program from global perspective)	3
12	各类疫苗介绍(Introduction of common vaccines)	3
13	各类疫苗介绍(Introduction of common vaccines)	3
14	实地参观疫苗生产企业, 了解疫苗的安全性和有效性研究方法	3
15	研发中的疫苗和新型免疫策略(Vaccine under development and new strategies)	3
16	研发中的疫苗和新型免疫策略(Vaccine under development and new strategies)	3

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

《疫苗与免疫》: 人民卫生出版社 2020 傅传喜 主编

Vaccinology: An Essential Guide: Wiley-Blackwell, ISBN: 978-0-470-65616-7, Gregg N. Milligan (Editor), Alan D. T. Barrett (Editor)

**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
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出勤 Attendance		5		
课堂表现 Class Performance		10		
小测验 Quiz				
课程项目 Projects				
平时作业 Assignments		20		
期中考试 Mid-Term Test				
期末考试 Final Exam				
期末报告 Final Presentation		35		
其它（可根据需要 改写以上评估方式） Others (The above may be modified as necessary)	presentation	30		

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