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**	生理学与病理生理学 I, Physiology and Pathophysiology I
2.	**授课院系 Originating Department**	医学院，School of Medicine
3.	**课程编号 Course Code**	MED304
4.	**课程学分 Credit Value**	3
5.	**课程类别 Course Type**	专业核心课 Major Core 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）**	陈国安，副教授，南方科技大学医学院 cheng@sustech.edu.cn 0755-88018042 Chen Guoan, Associate Professor, School of Medicine, Southern University of Science and Technology Email: cheng@sustech.edu.cn 0755-88018042 刘泉，副教授，南方科技大学医学院 liuq3@sustech.edu.cn 0755-88018055 Liu Quan, Associate Professor, School of Medicine, Southern University of Science and Technology Email: liuq3@sustech.edu.cn 0755-88018055 任欢，教授，南方科技大学医学院 Email: renh@sustech.edu.cn Ren Huan, Professor, School of Medicine, Southern University of Science and Technology Email: renh@sustech.edu.cn

9.	实验员/助教、所属学系、联系方式 Tutor/TA(s), Contact	无 NA （请保留相应选项 Please only keep the relevant information）
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	45	3			48

12. 先修课程、其它学习要求 Pre-requisites or Other Academic Requirements	先修课程：生物化学 II（BIO202）、分子生物学（BIO320）、有机化学 I（CH203）、细胞生物学（BIO206-15） Pre-requisites: BIO202, BIO320, CH203, BIO206-15.
13. 后续课程、其它学习规划 Courses for which this course is a pre-requisite	MED305 生理学与病理生理学 II，MED305 Physiology and Pathophysiology II
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

本课程整合了生理学与病理生理学的内容，将以细胞、器官系统为主线，深入阐明生命机体及其细胞、组织、器官等组成部分所表现的各种生命现象的活动规律和生理功能，机体主要常见疾病过程中可能出现的、共同的功能、代谢变化规律及其机制，以及机体的主要器官系统在多种疾病发生、发展过程中可能出现的常见的、共同的病理过程及主要常见病的发病过程。This is an integrated course of physiology and pathophysiology based on cell, organs and systems. It explains a set of activity patterns and physiological functions of living organisms in cells, tissues and organs, etc. This course also focuses on the physiology of abnormal states; specifically, the functional changes that accompany a particular syndrome or disease.

16. 预达学习成果 Learning Outcomes

1. 掌握机体正常的生命活动规律、生理功能与机制，以及机体内、外环境变化的影响。

To understand normal activity patterns, physiological functions and mechanisms of the organisms, and the effects of internal and external environmental changes (homeostasis) of the organisms.

2. 熟悉生命活动生理现象，呼吸、心跳、血液循环、胃肠运动与分泌、泌尿、出汗、生殖、内分泌等。

To be familiar with physiological phenomena of activities, such as respiration, heartbeat, blood circulation, gastrointestinal movement and secretion, urination, sweating, reproduction, endocrine and so on.

3. 掌握机体异常的生命活动及其规律。

To understand the physiology of abnormal states.

4. 掌握主要常见疾病过程中可能出现的、共同的功能与代谢变化规律及其机制。

To understand the functional changes that accompany a particular syndrome or disease

5. 掌握多种疾病发生发展过程中可能出现的常见的、共同的病理过程及主要常见病的发病过程。

To understand common pathological disease processes in the development of various diseases.

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.)

第一章 细胞的生物电现象 Cell bioelectric phenomenon

一、细胞的兴奋性和生物电现象 Cell excitability and bioelectric phenomena

二、兴奋的传导机制：兴奋在细胞膜上传导机制；兴奋在细胞间的传递 Conduction mechanism of excitation: excitatory conduction mechanism on cell membrane, transmission of excitement between cells

第二章 肌细胞的收缩功能与调节 Myocyte contraction and regulation

一、骨骼肌和心肌的收缩功能 Myocyte contraction of skeletal muscle and myocardium

二、平滑肌收缩功能、收缩机制 Contraction function and mechanism of smooth muscle and myocardium

第三章 机体内环境与稳态 1 Internal environment and homeostasis 1

一、机体生理功能的调节 The regulation of physiological function of organism

二、体内的控制系统 The control systems in the body

第四章 体内环境与稳态 2 Internal environment and homeostasis 2

一、环境与稳态 Environment and homeostasis

内环境及其稳态的概念及生理意义 The concept and physiological significance of internal environment and homeostasis

二、稳态应变、应激、应激原、应激的特点、良性和劣性应激、全身适应综合征 Allostasis, stress, stressor, characteristics of stress, eustress and distress, general adaptation syndrome

应激的全身性和细胞学反应：神经内分泌反应、免疫系统反应、急性期反应与急性反应蛋白、热休克蛋白与热休克反应 Systemic and cytological responses to stress: neuroendocrine response, immune system response, acute phase response and acute phase protein, heat shock protein and heat shock response

应激时机体代谢变化和功能变化 Body metabolism and function changes during stress

应激与疾病的关系 Relationship between stress and disease.

第五章 健康与疾病 Health and disease

一、健康与疾病 Health and disease

二、病因学 Etiology

三、发病学 Pathogenesis

1. 疾病发生发展的基本机制：神经机制、体液机制、细胞分子机制 The basic mechanism of disease development: Neural mechanism, humoral mechanism and cell molecular mechanism

2. 一般规律：稳态失衡与调节、损伤与抗损伤、因果交替、局部与整体关系 General law: disturbance of homeostasis and regulation, injury and anti-injury, cause and effect alternation, local and overall relationship

3. 疾病的转归：康复与死亡、脑死亡，植物状态与脑死亡的区别。脑死亡判断的法律和人文意义。Prognosis: recovery

and death, brain death, difference between vegetative state and brain death, legal and humanistic significance of brain death judgment.

四、疾病模型 Disease model

第六章　能量代谢与体温调节 Energy metabolism and body thermo-regulation

一、能量代谢与体温调节 Energy metabolism and body thermo-regulation

1. 机体能量的来源与利用 The source and utilization of body energy

2. 能量代谢的测定 Determination of energy metabolism

3. 影响能量代谢的主要因素 The main factors that affect energy metabolism

4. 基础代谢 Basal metabolism rate (BMR)

二、体温及其调节 Body temperature and thermo-regulation

1. 体温、机体的产热与散热 Body temperature, heat production and heat loss

2. 体温调节 Body thermo-regulation

第七章　神经系统概论 Introduction to Nervous System

一、神经系统功能活动的基本原理 Basic principles of nervous system function

二、神经系统对躯体的调控机制 Regulation Mechanism of nervous system

第八章　血液 1 Blood 1

一、血液的组成和理化特性 Blood composition and physicochemical properties

二、血细胞生理 Blood cell physiology

三、贫血的定义与分类 Definition and classification of anemia

第九章　血液 2 Blood 2

一、血型与输血原则 Blood type and the principles of blood transfusion

二、生理性止血及凝血、抗凝系统 Physiological hemostasis and coagulation, anticoagulation system

第十章　凝血系统疾病的病理生理 The pathophysiology of coagulopathy

一、凝血系统疾病的病理生理 Pathophysiology of coagulopathy

1. 弥散性血管内凝血（DIC） 的概念、病因和诱因以及分型 Disseminated intravascular coagulation (DIC), the concept, etiology, causes and classification

2. DIC 的发病机制，发展及功能代谢变化 The pathogenesis of DIC, The development of DIC, function metabolic changes in DIC

3. DIC 的实验室检查的特点 Characteristics of laboratory examination of DIC

第十一章 循环系统 1：心脏 Circulation system 1: Heart

一、心脏的泵血功能 Heart pumping function

二、动脉血压及动脉脉搏 Blood pressure and arterial pulse.

三、血量调节、冠脉循环和肺循环及脑循环 Blood volume regulation, coronary circulation, pulmonary circulation and cerebral circulation

第十二章 循环系统 2 Circulation system 2

一、微循环、组织液和淋巴液的生成及影响因素 Microcirculation, The formation and impact factors of interstitial fluid and lymph fluid

二、循环系统电生理 Electrophysiology of Circulation system

第十三章 循环系统神经及内分泌调节 Neuroregulation and endocrine regulation of the circulation system

一、循环系统神经及内分泌调节 Neuroregulation and endocrine regulation

1. 心脏与血管的神经支配 Innervation of heart and vessels

2. 心血管中枢、心血管反射 Cardiovascular center, cardiovascular reflex

二、心血管活动的体液调节 The humoral regulation of cardiovascular activity

三、心血管活动的局部血流调节 Local blood flow regulation of cardiovascular activity

第十四章 循环系统的病理生理学 1 The pathophysiology of circulation system 1

一、血流和血压异常与相关疾病 Abnormal blood flow and blood pressure and related diseases

1. 血液灌流障碍：微循环功能障碍、血液流变性障碍 Hemoperfusion disorders: microcirculatory dysfunction and disturbance of hemorheology

2. 血管张力调节障碍和高血压、低血压 Disorders of regulation in vascular tension and hypertension, hypotension

3. 休克 Shock

第十五章 循环系统的病理生理学 2 The pathophysiology of circulation system 2

一、缺血-再灌注 Ischemia-reperfusion injury

二、心功能障碍 Cardiac dysfunction

1. 心功能障碍的病因、诱因、分类和分期 Etiology, inducement, classification and stages of cardiac dysfunction

2. 心力衰竭发生的基本机制 Basic mechanism of heart failure

3. 心力衰竭时机体的代偿活动 The compensatory activity of the body during heart failure

4. 心力衰竭临床表现的病理生理学基础 Pathophysiological basis of clinical manifestation of heart failure

Section	Hour	Teaching Content
1	3	细胞的生物电现象 Cell bioelectric phenomenon
2	3	肌细胞的收缩功能与调节 Myocyte contraction and regulation
3	3	机体内环境与稳态 1 Internal environment and homeostasis 1
4	3	机体内环境与稳态 2 Internal environment and homeostasis 2
5	3	健康与疾病 Health and disease
6	3	能量代谢与体温调节

		Energy metabolism and body thermo-regulation
7	3	神经系统概论 Introduction to Nervous System
8	3	血液 1 Blood 1
9	3	血液 2 Blood 2
10	3	凝血系统疾病的病理生理 The pathophysiology of coagulopathy
11	3	循环系统 1：心脏 Circulation system 1: Heart
12	3	循环系统 2 Circulation system 2
13	3	循环系统的神经及内分泌调节 Neuroregulation and endocrine regulation of the circulation system
14	3	循环系统的病理生理学 1 The pathophysiology of circulation system 1
15	3	循环系统的病理生理学 2 The pathophysiology of circulation system 2
16	3	复习 Review

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

教材 Text book:

Carol Mattson Porth. Essentials of Pathophysiology. 4th ed. LWW ,2014.

参考书 Reference books：

朱大年,王庭槐.生理学.第八版.北京：人民卫生出版社,2013.

王建枝,殷莲华.病理生理学.第八版. 北京：人民卫生出版社,2013.

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		10		
小测验 Quiz		40		
课程项目 Projects				
平时作业 Assignments				
期中考试 Mid-Term Test				
期末考试 Final Exam		40		
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