

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, Physiology
2.	授课院系 Originating Department	医学院 School of Medicine
3.	课程编号 Course Code	MED210
4.	课程学分 Credit Value	3
5.	课程类别 Course Type	专业基础课 Major Foundational 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 Guoan Chen, 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 Quan Liu, Associate Professor, School of Medicine, Southern University of Science and Technology Email: liuq3@sustech.edu.cn 0755-88018055
9.	实验员/助教、所属学系、联系方式 Tutor/TA(s), Contact	无 NA
10.	选课人数限额(可不填) Maximum Enrolment	

(Optional)

11. 授课方式
Delivery Method

学时数
Credit Hours

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
48	0	0	0	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.

MED203 医学生物化学
无 None
无 None

教学大纲及教学日历 SYLLABUS

15. 教学目标 Course Objectives

本课程的教学目标是培养临床执业者(如临床医学、口腔医学), 阐明人体及其细胞、组织、器官等组成部分所表现的各种生命现象的活动规律、功能及其调节。

The aim of this course focuses on the basic principles of physiology needed to begin a career in the health care professions, such as medicine and dentistry. This course explains the activity patterns, functions and their regulation of cells, tissues and organs of human beings.

16. 预达学习成果 Learning Outcomes

1) 掌握人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, and the effects of internal and external environmental changes (homeostasis) of the human body.

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.

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 绪论

Chapter 1 Introduction

一、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、机体生理功能的调节

The regulation of physiological function of organism

三、体内的控制系统

The control systems in the body

第二章 细胞的基本功能

Chapter 2 Fundamental functions of a cell

一、细胞膜的物质转运功能

Transport of substances through cell membranes

二、细胞的信号转导

Signal transduction

三、细胞的电活动（膜电位和动作电位）

Membrane Potentials and Action Potentials

四、骨骼肌和心肌的的兴奋和收缩

Excitation and contraction of skeletal muscle and myocardium.

五、平滑肌的兴奋和收缩

Excitation and contraction of smooth muscle.

第三章 血液

Chapter 3 Blood

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、生理性止血及凝血、抗凝系统

Physiological hemostasis and coagulation, anticoagulation system

四、血型与输血原则

Blood type and the principles of blood transfusion

第四章 血液循环

Chapter 4 Blood circulation

一、心脏的泵血功能

Pump function of the heart

二、心脏的电生理

Cardiac electrophysiology

三、血管生理

Vascular physiology

四、冠脉循环、肺循环及脑循环

Coronary circulation, pulmonary circulation and cerebral circulation

五、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

六、心血管活动的调节

Regulation of cardiovascular activity

第五章 呼吸

Chapter 5 Respiration

一、肺通气

Pulmonary ventilation

二、肺换气和组织换气

Principles of gas exchange in the lung and other tissues

三、气体在血液中的运输

Gas transport in the blood

四、呼吸运动的调节

Regulation of respiration

第六章 消化和吸收

Chapter 6 Digestion and absorption

一、口腔消化和吞咽

Pulmonary ventilation

二、胃内消化

Principles of gas exchange in the lung and other tissues

三、小肠内消化

Digestion in the small intestine

四、肝脏的消化功能

Digestional function of the liver

五、大肠的功能

Functions if the large intestine

六、吸收

Absorption

第七章 能量代谢与体温调节

Chapter 7 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

第八章 尿的生成和排出

Chapter 8 Urine formation and micturation

一、肾的功能解剖和肾血流量

Functional anatomy and blood flow of the kidney

二、肾小球的滤过功能

Glomerular filtration

三、肾小管和集合管的物质转运功能

Renal tubular function of substance transportation

四、尿液的浓缩和稀释

Urine Concentration and Dilution

五、尿生成的调节

Regulation of urine formation

六、清除率

Clearance rate

七、尿的排放

Micturition

第九章 感觉器官的功能

Chapter 9 Functions of sense organs

一、感觉概述

General information

二、躯体和内脏感觉

Somatic and visceral sensation

三、视觉

Vision

四、听觉

The sense of hearing

五、平衡感觉

The sense of balance

六、嗅觉和味觉

Olfaction and gustation

第十章 神经系统的功能

Chapter 10 Functions of nervous system

一、神经系统功能活动的基本原理

Basic principles of nervous system function and activity

二、神经系统的感觉分析功能

Analytic function of the nervous system for sensation

三、神经系统对躯体运动的调控

Nervous regulation of body movement

四、神经系统对内脏活动、本能行为和情绪的调节

Nervous regulation of visceral movement, instinctive behaviour and mood

五、脑电活动及睡眠与觉醒

Electrical activity of brain, sleep and wakefulness

六、脑的高级功能

Advanced functions of the brain

第十一章 内分泌

Chapter 11 Endocrine

一、内分泌与激素

Endocrine and hormones

二、下丘脑-垂体及松果体内分泌

Endocrine of hypothalamus, pituitary gland and pineal body

三、甲状腺内分泌

Endocrine of thyroid

四、甲状旁腺、维生素 D 与甲状腺 C 细胞内分泌

Endocrine of parathyroid, vitamin D and C-cells or parafollicular cells of the thyroid gland

五、胰岛内分泌

Endocrine of pancreatic islets

六、肾上腺内分泌

Endocrine of adrenal gland

七、组织激素及功能器官内分泌

Tissue hormones and endocrine of functional organs

第十二章 生殖

Chapter 12 Reproduction

一、男性生殖功能及其调节

Reproductive function of the male and its regulation

二、女性生殖功能及其调节

Reproductive function of the female and its regulation

三、妊娠

Pregnancy

Section	Hour	Teaching Contents	Teacher
1	3	绪论 Introduction	刘泉
2	3	细胞的基本功能 1 Fundamental functions of a cell 1	陈国安
3	3	细胞的基本功能 2 Fundamental functions of a cell 2	陈国安
4	3	血液 Blood	刘泉
5	3	血液循环 1 Blood circulation 1	刘泉
6	3	血液循环 2 Blood circulation 2	刘泉
7	3	呼吸 Respiration	陈国安
8	3	尿的生成和排出 1 Urine formation and micturition 1	陈国安
9	3	尿的生成和排出 2 Urine formation and micturition 2	陈国安

10	3	感觉器官的功能 Functions of sense organs	刘泉
11	3	神经系统的功能 1 Functions of nervous system 1	陈国安
12	3	神经系统的功能 2 Functions of nervous system 2	陈国安
13	3	消化和吸收 1 Digestion and absorption 1	刘泉
14	3	消化和吸收 2 Digestion and absorption 2	刘泉
15	3	内分泌 Endocrine	刘泉
16	3	能量代谢与体温, 生殖 Energy metabolism and body thermo-regulation, Reproduction	陈国安

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

<p>教材 Text book:</p> <p>王庭槐. 生理学. 第九版. 北京: 人民卫生出版社, 2018.</p> <p>参考书 Reference books:</p> <p>John E Hall. Guyton and Hall Medical Physiology. 13th ed. Elsevier, 2016.</p>
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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
出勤与课堂表现 Attendance and Class Performance		10		
小测验 Quiz				
课程项目 Projects				
平时作业 Assignments				
平时考试 Monthly Test				
期中考试 Mid-Term Test		30		
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**

<input checked="" type="checkbox"/> A. 十三级等级制 Letter Grading <input type="checkbox"/> 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主任张文勇教授审核通过。

