

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	化学原理实验 B General Chemistry Laboratory B
2.	授课院系 Originating Department	化学系 Department of Chemistry
3.	课程编号 Course Code	CHEMS002
4.	课程学分 Credit Value	0.5
5.	课程类别 Course Type	专业选修课 Major Elective Courses
6.	授课学期 Semester	夏季 Summer
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)	<p>何绮婷, 化学系, 工程师 Dr. HE Qi-Ting, Department of Chemistry, Teaching Engineer 第一教学楼 537 室 Rm.537, Lecture Hall 1 heqt@sustech.edu.cn 0755-88018741</p> <p>李晓华, 化学系, 工程师 Dr. LI Xiao-Hua, Department of Chemistry, Teaching Engineer 第一教学楼 537 室 Rm.537, Lecture Hall 1 lixh3@sustech.edu.cn</p> <p>房芳, 化学系, 工程师 Dr. FANG Fang, Department of Chemistry, Teaching Engineer 荔园一栋 408 室 Rm.408, LiYuan 1. fangf@sustech.edu.cn</p> <p>于月娜, 化学系, 实验师 Dr. YU Yue-Na, Department of Chemistry, Teaching Engineer 荔园一栋 408 室</p>

	<p>Rm.408, LiYuan 1. yuyn@sustech.edu.cn</p> <p>汤小菊, 化学系, 工程师 Dr. TANG Xiao-Ju, Department of Chemistry, Teaching Engineer 第一教学楼 532 室 Rm.532, Lecture Hall 1 tangxj@sustech.edu.cn</p> <p>王春燕, 化学系, 工程师 Dr. WANG Chun-Yan, Department of Chemistry, Teaching Engineer 第一教学楼 536 室 Rm.536, Lecture Hall 1 wangcy@sustech.edu.cn</p> <p>刘华伟, 化学系, 实验师 Dr. LIU Hua-Wei, Department of Chemistry, Teaching Engineer 第一教学楼 536 室 Rm.536, Lecture Hall 1 liuhw@sustech.edu.cn</p> <p>颜瑗珩, 化学系, 实验员 YAN Ai-Hui, Department of Chemistry, Teaching Technician 第一教学楼 533 室 Rm.533, Lecture Hall 1 yanah@sustech.edu.cn</p>										
<p>9. 实验员/助教、所属学系、联系方式 Tutor/TA(s), Contact</p>	<p>无 NA</p>										
<p>10. 选课人数限额(可不填) Maximum Enrolment (Optional)</p>	<p>最多 80 人, 每班最多 20 人, 最多 4 个班。 Max. 80 students; 20 students/class; max. 4 classes.</p>										
<p>11. 授课方式 Delivery Method</p> <p>学时数 Credit Hours</p>	<table border="1"> <thead> <tr> <th>讲授 Lectures</th> <th>习题/辅导/讨论 Tutorials</th> <th>实验/实习 Lab/Practical</th> <th>其它(请具体注明) Other (Please specify)</th> <th>总学时 Total</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0</td> <td>16</td> <td>0</td> <td>16</td> </tr> </tbody> </table>	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	0	0	16	0	16
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							
0	0	16	0	16							
<p>12. 先修课程、其它学习要求 Pre-requisites or Other Academic Requirements</p>	<p>化学原理实验 A (CH102-17)</p>										
<p>13. 后续课程、其它学习规划 Courses for which this course is a pre-requisite</p>	<p>无 NA</p>										
<p>14. 其它要求修读本课程的学系 Cross-listing Dept.</p>	<p>本课程巩固学习化学实验的基本方法、基本操作与常见仪器。 The purpose of this course is to consolidate the basic methods, basic operations and common instruments for studying chemistry experiments.</p>										
<p>15. 教学目标 Course Objectives</p>	<p style="text-align: center;">教学大纲及教学日历 SYLLABUS</p>										

本课程系统讲解化学实验的基本方法、基本操作与常见仪器，涵盖化学实验的原理与应用，面向化学与非化学专业学生。主要内容包括：化学物质的提取/制备、分离/纯化、定性/定量分析，仪器分析，数据处理与误差分析等。

This course is open to students who are/aren't majored in chemistry, it systematically introduces fundamental methods, necessary skills and common instruments of chemical experiments, and it covers the principles and applications of chemical experiments. The contents include: extraction/preparation, separation/purification, and qualitative/quantitative analysis of chemical materials, instrumental analysis, data processing and error evaluation, etc.

16. 预达学习成果 Learning Outcomes

了解化学实验的基本原理，掌握基本操作，熟悉常见仪器，增强实验安全意识。学生将熟悉一系列无机实验、有机实验与分析实验，理实交融，掌握解决实际生活中简单化学问题的基本方法。

After completing this course, students should master a few basic methods, necessary skills, and instrument operation related to experimental chemistry. They should be also familiar with laboratory safety rules. After learning a series of inorganic, organic, and analytical chemistry experiments, they should have a conceptual and practical understanding of a range of chemical principles, and master the basic methods for solving simple chemical problems in real life.

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.)

实验一 茶叶中提取咖啡因：了解天然有机化合物提取的方法；学习脂肪提取器的使用；掌握升华提纯固体有机物的原理及操作方法；熟悉和掌握显微熔点仪的原理及使用方法。（4学时）

Experiment 1 Soxhlet Extraction of Caffeine from Tea Leaves: To learn the natural compound extraction. To master the operation of Soxhlet extraction. To master the principles and operation of purification of solid organic compounds by sublimation. To master the principles and operation of melting point microscope. (4 credit hours)

实验二 葡萄糖酸锌及其片剂的制备：学习和掌握药用微量元素药物合成的基本方法；掌握旋转蒸发仪的使用、减压过滤和重结晶等操作；了解锌的生物意义。（4学时）

Experiment 2 Preparation of zinc gluconate and its tablets: To learn and master the basic method of synthesis of medicinal trace element drug. To master the use of rotary evaporators, vacuum filtration and recrystallization. To understand the biological significance of zinc. (4 credit hours)

实验三 硫酸亚铁铵的制备及组成分析（上）：了解复盐的一般特性及其硫酸亚铁铵的制备方法；熟练掌握水浴加热、蒸发、结晶和减压过滤等基本操作；学习用分光光度法定量检验产品中杂质 Fe^{3+} 的含量。（4学时）

Experiment 3: Synthesis of Ammonium Iron(II) Sulfate Hexahydrate (Part I): To understand the general characteristics of double salts and the preparation of ammonium iron(II) sulfate hexahydrate. To master the skills of water bath, evaporation, crystallization and vacuum filtration. To quantitatively determine the amount of Fe^{3+} impurity by spectroscopy. (4 credit hours)

实验四 硫酸亚铁铵的制备及组成分析（下）：学习用分光光度法定量检验 Fe^{3+} 的含量；掌握标准曲线的绘制和应用。（4学时）

Experiment 4 Synthesis of Ammonium Iron(II) Sulfate Hexahydrate (Part II): To quantitatively determine the amount of Fe^{3+} ions by spectroscopy. To master the plotting and application of standard curves. (4 credit hours)

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

指定教材：《化学原理实验 A》，南方科技大学，化学教学实验室主编。

Students' Book: General Chemistry Laboratory A, SUSTech, edited by Chemistry Experiment Teaching Center.

推荐参考资料：

《普通化学实验》，同济大学化学系，杨勇主编，同济大学出版社。

《实验化学》（上册）（第二版），陈虹锦主编，科学出版社。

《无机化学实验》（第二版），大连理工大学无机化学教研室，高等教育出版社。

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		5		病假须有医院的有效病假条，事假须提供生活导师签字的请假条。学生必须在实验开始前向指导教师说明。统一时间补做实验。 A valid sick leave must be issued by the hospital. A leave of absence is required and signed by the student's life tutor. The student must explain to the instructor before the experiment begins. The lab will arrange a unified time for the students to complete the experiments.
课堂表现 Class Performance		40		
小测验 Quiz		10		
课程项目 Projects				
平时作业 Assignments		45		预习报告 10 分，实验报告 35 分。 Preview report 10', Experimental report 35'.
期中考试 Mid-Term Test				
期末考试 Final Exam				
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

化学系教学指导委员会

Teaching committee of the chemistry department

