

## 课程大纲 COURSE SYLLABUS

1.	<b>课程代码/名称 Course Code/Title</b>	CHE5043/物质表征中的物理方法
2.	<b>课程性质 Compulsory/Elective</b>	中文
3.	<b>课程学分/学时 Course Credit/Hours</b>	2.00/32
4.	<b>授课语言 Teaching Language</b>	中文
5.	<b>授课教师 Instructor(s)</b>	张元竹
6.	<b>先修要求 Pre-requisites</b>	无
7.	<b>教学目标 Course Objectives</b>	
	了解物质表征中的单晶 X-射线晶体结构分析的原理和方法，掌握晶体结构分析程序的使用。	
8.	<b>教学方法 Teaching Methods</b>	
	<p>教学方法：将采取教师讲解与学生课堂互动共同结合；结合学生基础与学科前沿，深入浅出地讲解，注重质量第一，注重学生深刻理解掌握体会教学内容。并采取课堂提问，课后阅读和期末报告的方法对学生进行全方位考核。</p> <p>授课创新点：采用课堂互动、课后文献阅读等方式来多方面调动学生学习积极性。</p>	
9.	<b>教学内容 Course Contents</b>	
	<b>Section 1</b>	(1) The introduction of the x-ray diffraction techniques.单晶衍射技术前沿介绍 (4 hours).
	<b>Section 2</b>	(2) The theory of diffraction and the symmetry in crystal 衍射理论及晶体对称性 (6 hours).
	<b>Section 3</b>	(3) Diffraction technique (data collection, reduction, and solving). 晶体衍射理论与实践(12 hours)
	<b>Section 4</b>	(4) Software learning and practice, including XP, Diamond, etc. 软件讲解及学习(6 hours)
	<b>Section 5</b>	(5) 4-hour hand-on experience of x-ray single crystal diffractometer. 上机操作(4 hours)
	<b>Section 6</b>	
	<b>Section 7</b>	
	<b>Section 8</b>	
	<b>Section 9</b>	
	<b>Section 10</b>	

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<b>10.</b>	<b>课程考核</b> <b>Course Assessment</b>	
	① 考查；② 出勤 Attendance: 5%；课堂表现 Class Performance : 10%；小测验 Quiz: 20%；平时作业 Assignments: 20%；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) : 10%。。	
<b>11.</b>	<b>教材及其它参考资料</b> <b>Textbook and Supplementary Readings</b>	
	Structure of Materials - An Introduction to Crystallography, Diffraction and Symmetry Cambridge, 2007 <input type="checkbox"/> Advanced Structural Inorganic Chemistry IUCr, 2008 <input type="checkbox"/> Fundamentals of Powder Diffraction and Structural Characterization of Materials 2nd Edition, Springer, 2009 <input type="checkbox"/> 单晶结构分析原理与实践 第二版, 科学出版社, 陈小明, 2007	