

课程大纲 COURSE SYLLABUS

1.	课程代码/名称 Course Code/Title	GGC5055 “科学研究诚信与伦理” / Integrity and Ethics for Scientific Research”
2.	课程性质 Compulsory/Elective	通识选修课
3.	开课单位 Offering Dept.	研究生院
4.	课程学分/学时 Course Credit/Hours	1/16
5.	授课语言 Teaching Language	中英文
6.	授课教师 Instructor(s)	李保文, 汪宏, 董涛等
7.	开课学期 Semester	秋季
8.	是否面向本科生开放 Open to undergraduates or not	no
9.	先修要求 Pre-requisites	(如面向本科生开放, 请注明区分内容。 If the course is open to undergraduates, please indicate the difference.) no
10.	教学目标 Course Objectives	<p>(如面向本科生开放, 请注明区分内容。 If the course is open to undergraduates, please indicate the difference.)</p> <p>2021年3月20日中共中央办公厅, 国务院办公厅印发《关于加强科技伦理治理的意见》明确指出: “科技伦理是开展科学研究、技术开发等科技活动需要遵循的价值理念和行为规范, 是促进科技事业健康发展的重要保障。” 意见要求“将科技伦理教育作为相关学科本专科学学生、研究生教育的重要内容, 鼓励高等学校开设科技伦理教育相关课程, 教育青年学生树立正确的科技伦理意识, 遵守科技伦理要求”。</p> <p>“Most people say that it is the intellect which makes a great scientist. They are wrong: it is character.” Albert Einstein.</p> <p>“大多数人说, 是才制造就了伟大的科学家。他们错了, 是人格”。爱因斯坦</p> <p>Integrity in research is essential for maintaining scientific excellence and for keeping the public’s trust. Integrity characterizes both individual researchers and the institutions in which they work. For a scientist, integrity embodies above all the individual’s commitment to intellectual honesty and personal responsibility. It is an aspect of moral character and experience. For an institution, it is a commitment to creating an environment that promotes responsible conduct by embracing standards of excellence, trustworthiness.</p> <p>诚信是保持科学的卓越性和维持公众对于科学和科学界的信赖的重要基础。诚信涉及科学研究者自身和其所在的研究机构和团体。诚信包含了科学工作者对知识和自身责任的承诺。</p> <p>The objectives of this course is to foster scientists/researchers with character!</p> <p>本课程的目标是培育人格高尚的科学研究人才</p>

本课程将帮助研究生建立严格的职业标准和道德水准， 为国家和人类贡献力量。

11. 教学方法 Teaching Methods

(如面向本科生开放, 请注明区分内容。 If the course is open to undergraduates, please indicate the difference.)

The students in this course will go through very deep discussions (via case study) in all possible aspects of misconducts in all stages of the scientific research including proposal writing, execution of hypothesis, data/evidence collecting, selection, interpretation, results presentation, paper writing and publication. The course will foster student's high professional standard in conducting research.

本课程引导学生对科学研究的各个环节(研究题目选择、实验实现、数据记录、数据阐述、数据选择、文章书写和发表等)中所碰到各种科学诚信和科学伦理问题进行深入研讨。课程以过去在科技界发生的国内外众多事件作为案例分析, 详细讨论每个案例的背景和后果。

课程以讲座, 课堂讨论和学习报告。

12. 教学内容 Course Contents

(如面向本科生开放, 请注明区分内容。 If the course is open to undergraduates, please indicate the difference.)

Section 1

Introduction: Responsible Conduct in Research : 学术诚信与职业道德

What is integrity? 什么是诚信?

What is misconduct? 何为学术不端?

Impact of misconduct to society 学术诚信与社会

Damage to scientific research community 学术不端对科学研究团体对影响

Section 2

Advising and Mentoring 师生关系

Choosing group/supervisor 导师选择

Research Plan 研究计划/谁该负责?

Authorship and allocation of credit/responsibility 荣誉、责任和成果等分配, 谁该是作者?

Who Gets Credit? Student or supervisor? 谁该得到“credit”?

Supervisor as role model 导师作为学术诚信榜样

Case Study Discussion (page 5 and 6 in Ref 2): 案例讨论 (参考文献2 - 第5, 6页)

Section 3

Treatment of Experimental Data 实验数据记录/处理

How to record experimental data? 如何记录实验数据?

	<p>How to use/treat data? 如何处理实验数据？</p> <p>How to present data? 如何呈现实验数据？</p> <p>Share data after paper publication:文章发表后的数据分享</p> <p>Case Study (page 10 in Ref 2): 案例分析 (参考文献2 -第10页)</p>
<p>Section 4</p>	<p>Mistake or Negligence? 错误还是疏忽</p> <p>All researchers are human being that make mistakes ! Question is if the mistake an Honest error or negligence ? 是故意错误还是无意疏忽？</p> <p>Respect others 引用前人/别人的相关工作</p> <p>Sharing Research results 如何分享研究成果</p> <p>The Race to Publish发表文章/研究成果的途径：是选择专业杂志还是公共媒体发布平台（比如公众号、传统媒体-电视、报纸。。。。。）</p> <p>Case study 1-Extension of Maxwell Equations: 案例分析：Maxwell方程扩展</p> <p>Case study 2- (page 13, 14 in Ref 2): 案例分析 (参考文献2 -第13,14页)</p>
<p>Section 5</p>	<p>Research Misconduct 学术不端</p> <p>What is Research Misconduct? 什么才叫学术不端？</p> <p>Fabrication 篡改数据/图表</p> <p>Falsification 伪造</p> <p>Plagiarism 剽窃</p> <p>Faked peer review 虚假同行评议</p> <p>Faked supervisor's signature: 虚假导师签名</p> <p>Abuse of confidentiality of peer review: 同行评审的保密性的滥用</p> <p>Failure to allocate credit appropriately in publication: 添加没有贡献的人作为作者之一，不加有贡献的人作为作者</p> <p>Case study 1: A Breach of Trust. (Page 16 in Ref 2): 信誉损坏案例分析-贝尔实验室肖恩案例（文献2，第16页）</p> <p>Case Study 2/ 案例分析 2: 2018 Dr. Piero Anversa Cardiac Stem Cell "falsified and/or fabricated date" 哈佛大学医学院心肌再生皮也罗-安韦萨教授数据造假事件.</p> <p>Case Study 3: Fabrication in Grant Proposal A Breach of Trust. (Page 17 in Ref 2):伪造没有完成的工作案例分析。（文献2第 17页）</p> <p>Case Study 4: Plagiarism. (Page 18 in Ref 2)。剽窃案例分析：文献2第18页）</p>
<p>Section 6</p>	<p>Competing Interests, Commitments, and Value 利益冲突，价值</p>

	<p>Role of Peer Reviewer 评审人角色：如何公正？如何避免评审过程的学术不端</p> <p>A Conflict of Commitment 利益冲突</p> <p>Competition and/or collaboration? 合作还是竞争？</p> <p>Source of Research Funding Influence Research Findings? 研究资助方影响研究者行为？</p> <p>Intellectual property 知识产权</p> <p>Case study (page 31, 32, in Ref. 2) : 案例分析 (文献2 第31 , 32 页)</p>
<p>Section 7</p>	<p>Human Participants and Animal Subjects in Research</p> <p>Ethics in life science and medical science 生命科学，医学科学伦理</p> <p>Ethics in research involved human being and animals 涉及人和动物的科学研究的伦理问题</p> <p>Case Study 1/案例分析： 2018 年南科大贺建奎事件</p>
<p>Section 8</p>	<p>Responding to Suspected Violations of Professional Standards</p> <p>Treatment of Misconduct by a Journal 杂志如何处理学术不端</p> <p>Treatment of Misconduct by Institute/University: Comparison between domestic and overseas 大学/研究单位怎么处理学术不端： 国内外案例比较</p> <p>Case Study 1 (page 22 in Ref 2: A Career in the Balance; 案例分析- 职业平衡 (文献2 , 第22页)</p> <p>Case Study 2: Wong Woo -Suk (2005) (Page 21 in Ref 2) : 案例分析：韩国黄禹锡造假事件</p>
<p>Section 9</p>	
<p>Section 10</p>	
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<p>13. 课程考核 Course Assessment</p>	
<p>(① 考核形式 Form of examination; ② . 分数构成 grading policy; ③ 如面向本科生开放，请注明区分内容。 If the course is open to undergraduates, please indicate the difference.)</p> <p>Attendance/出席课程： 20%</p> <p>Class discussion/课堂讨论： 40%</p> <p>Project report/项目报告： 40%</p>	
<p>14. 教材及其它参考资料 Textbook and Supplementary Readings</p>	

- (1) "Integrity in Scientific Research: Creating an Environment That Promotes Responsible Conduct" (2002). National Academy Press. (2002)
- (2) "On Being a Scientist: A Guide to Responsible Conduct in Research", National Academy Press, Third Edition (2009).