

## 课程大纲 COURSE SYLLABUS

1.	<b>课程代码/名称</b> Course Code/Title	SME5021 生物传感技术及应用 Biosensing Technology and Applications
2.	<b>课程性质</b> Compulsory/Elective	选修/Elective
3.	<b>课程学分/学时</b> Course Credit/Hours	2/32
4.	<b>授课语言</b> Teaching Language	英文 English
5.	<b>授课教师</b> Instructor(s)	林苑菁 Yuanjing Lin
6.	<b>是否面向本科生开放</b> Open to undergraduates or not	否 Not open
7.	<b>先修要求</b> 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.）  无 None
8.	<b>教学目标</b> Course Objectives	（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.） 通过课程学习让研究生了解生物传感器及生物芯片相关理论知识、制备方法、信号采集方法。了解的生物传感技术优势，以及在可穿戴集成器件、智能传感等领域的应用；了解生物传感技术的前景、技术挑战及前沿研究方向。 This course aims at introducing the basic knowledges and applications of biosensing technology. It will cover introduction on the mechanisms of biosensing, fabrication of biosensors and biochips and the characterization methods to extract biosignals. Discussion on its attractive properties and applications in wearable smart sensing devices will be included, as well as the future prospects and challenges of intelligent biosensing technology.
9.	<b>教学方法</b> 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.）  讲授 Lectures, 文献阅读 Research paper review, 口头报告/展示 selected topics presentation by students
10.	<b>教学内容</b> 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.）
	<b>Section 1</b>	Introduction and basic knowledge of biosensing technology 生物传感技术基础知识
	<b>Section 2</b>	Basic mechanisms of biosensing 生物传感基本原理
	<b>Section 3</b>	Fabrication methods of biosensors and biochips 生物传感器及生物芯片制备方法
	<b>Section 4</b>	Characterization methods of biosensors

	生物传感器分析方法
<b>Section 5</b>	Biosensors and integrated devices for wearable applications I 面向可穿戴应用的生物传感器及集成器件 I
<b>Section 6</b>	Biosensors and integrated devices for wearable applications II 面向可穿戴应用的生物传感器及集成器件 II
<b>Section 7</b>	Prospects and challenges of intelligent biosensing technology I 智能生物传感技术的前景与挑战 I
<b>Section 8</b>	Prospects and challenges intelligent biosensing technology II 智能生物传感技术的前景与挑战 II
<b>Section 9</b>	
<b>Section 10</b>	
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<b>11. 课程考核</b> <b>Course Assessment</b>	
	<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>1) 出勤 attendance (10%), 2) 课堂表现 class participation (10%), 3) 中期报告 Mid-Term Report (30 %), 口头报告 final presentation based on related topics towards the end of the course (50%)</p>
<b>12. 教材及其它参考资料</b> <b>Textbook and Supplementary Readings</b>	
	《生物传感器》张先恩 2006