

# 抽样调查 教学大纲

## Survey Sampling Subject Syllabus

### 一、课程信息 Subject Information

课程编号: Subject ID	3100313011	开课学期: Semester	4
课程分类: Category		所属课群: Section	专业方向类课程
课程学分: Credit Points	2.5	总学时/周: Total Hours/Weeks	40
理论学时: LECT. Hours	40	实验学时: EXP. Hours	0
PBL 学时: PBL Hours	0	实践学时/周: PRAC. Hours/Weeks	0
开课学院: College	数学与统计学院	适用专业: Stream	应用统计学 AS
课程属性: Pattern	选修 Elective	课程模式: Mode	自建 NEU
中方课程协调人: NEU Coordinator	张永超	成绩记载方式: Result Type	百分制 Marks
先修课程: Requisites	统计学导论, 概率论与随机变量		
英文参考教材: EN Textbooks	无		
中文参考教材: CN Textbooks	冯士雍等, 《抽样调查理论与方法》, 中国统计出版社, 2012, 第二版		
教学资源: Resources	杨义群, 《抽样调查与抽样检验》, 学苑出版社, 1993 樊鸿康, 《抽样调查技术》, 南开大学出版社, 1995 张小蒂, 《抽样调查技术与应用》, 上海科技文献出版社, 1991		
课程负责人(撰写人): Subject Director	张永超	提交日期: Submitted Date	单击或点击此处输入日期。
任课教师(含负责人): Taught by	张永超		
审核人: Checked by	韩鹏	批准人: Approved by	史闻博
		批准日期: Approved Date	单击或点击此处输入日期。

## 二、教学目标 Subject Learning Objectives (SLOs)

注：毕业要求及指标点可参照悉尼学院本科生培养方案，可根据实际情况增减行数

Note: GA and index can be referred from undergraduate program in SSTC website. Please add/reduce lines based on subject.

<p>整体目标: Overall Objective</p>	<p>通过本课程的教学，学生应掌握抽样调查的基本原理、抽样的基本技术以及估计的基本方法，能独立地从事简单问题的抽样调查方案设计，为进一步学习、研究打下良好的基础，并形成一定的应用能力。</p> <p>Through the teaching of this course, students should master the basic principles, techniques, and estimation methods of sampling surveys, be able to independently design sampling survey plans for simple problems, lay a solid foundation for further learning and research, and develop certain practical abilities.</p>	
<p>(1) 专业目标: Professional Ability</p>	<p>1-1</p>	<p>了解抽样调查的意义与作用；抽样调查的发展历史；抽样调查的主要应用。</p> <p>Understand the significance and role of sampling surveys; The development history of sampling surveys; The main applications of sampling surveys.</p>
	<p>1-2</p>	<p>理解抽样调查的一些常用概念：总体、样本、抽样框、抽样误差等基本概念。</p> <p>Understand some common concepts of sampling survey: population, sample, sampling frame, sampling error and other basic concepts.</p>
	<p>1-3</p>	<p>掌握常见的抽样方法与估计方法。</p> <p>Master common sampling and estimation methods.</p>
<p>(2) 德育目标: Essential Quality</p>	<p>2-1</p>	<p>在实践活动中理解并遵守职业道德和规范，履行责任。</p> <p>Understand and abide by professional ethics and norms in practical activities, and fulfill responsibilities.</p>
<p><b>课程教学目标与毕业要求的对应关系 Matrix of GA &amp; SLOs</b></p>		
<p>毕业要求 GA</p>	<p>指标点 GA Index</p>	<p>教学目标 SLOs</p>
<p>1、理学知识：具有扎实的数学基础，能够将数学、自然科学和专业用于解决复杂实际问题。</p>	<p>指标点 1-2: 掌握统计调查、统计数据处理、统计分析、计算机与统计软件使用等应用统计学的基本理论、知识与方法，具备采集、处理、分析数据的能力，熟悉预研报告、可行性分析报告、研究方案等文档的撰写规范。</p>	<p>1-1—1-3</p>
<p>2、问题分析：能够借助应用统计学的基本原理、方法和手段，识别、表达、并通过文献研究分析复杂实际问题，以获得有效结论。</p>	<p>指标点 2-1: 能够借助应用统计学的基本原理、方法和手段，分析、识别、表达本专业相关的复杂实际问题；</p>	<p>1-1—1-3</p>
	<p>指标点 2-2: 能够借助应用统计学的基本原理、方法和手段，针对复杂实际问题设计针对性的方案，并综合运用文献、科学理论和技术手段予以解决。</p>	<p>1-1—1-3</p>
<p>5、使用现代工具：能够针对复杂实际问题，开发、选择</p>	<p>指标点 5-1: 能够对本专业相关复杂实际问题进行文献检索、分析、整理归纳、</p>	<p>1-1—1-3</p>

与使用恰当的技术、资源、现代信息技术工具，包括对复杂实际问题的预测与模拟，并能够理解其局限性。	数据处理与建模，理解获取相关信息参数的必要性与基本方法，并理解其局限性。	
7、环境与可持续发展：能够理解和评价针对本专业相关复杂实际问题的实践活动对环境、社会可持续发展的影响。	指标点 7-1：了解本专业相关的环境与可持续发展方针政策和法律法规，理解实践活动中所应承担的责任。	2-1
8、职业规范：具有人文社会科学素养、社会责任感，能够在实践活动中理解并遵守职业道德和规范，履行责任。	指标点 8-2：了解本专业相关的职业道德与规范并认识其重要性，具备良好的职业道德和社会责任感，能够对实践活动的社会道德进行判断和评鉴，并履行相应的责任。	2-1

### 三、教学内容 Content (Topics)

注：以中英文填写，各部分内容的表格可根据实际知识单元数量进行复制、扩展或缩减

Note: Filled in both CN and EN, extend or reduce based on the actual numbers of knowledge unit

#### (1) 理论教学 Lecture

知识单元序号: Knowledge Unit No.	1	支撑教学目标: SLOs Supported	1-1, 2-1
知识单元名称 Unit Title	概论 Introduction		
知识点: Knowledge Delivery	抽样调查的意义与作用 The significance and role of sampling survey		
	抽样调查的发展历史 The development history of sampling survey		
	抽样调查的主要应用 The main applications of sampling surveys		
学习目标: Learning Objectives	了解: Recognize	抽样调查的发展历史及抽样调查的主要应用 The development history of sampling survey and its main applications	
	理解: Understand	抽样调查的意义与作用 The significance and role of sampling survey	
	掌握: Master		
德育目标 Moral Objectives	在实践活动中理解并遵守职业道德和规范，履行责任。 Understand and abide by professional ethics and norms in practical activities, and fulfill responsibilities.		
重点: Key Points	抽样调查的意义与作用 The significance and role of sampling survey		
难点: Focal points	抽样调查的意义与作用 The significance and role of sampling survey		
知识单元序号: Knowledge Unit No.	2	支撑教学目标: SLOs Supported	1-2

知识单元名称 Unit Title	基本概念 Basic concepts	
知识点: Knowledge Delivery	抽样调查的一些常用概念: 总体、样本、抽样框、抽样误差等基本概念 Some common concepts of sampling survey: population, sample, sampling frame, sampling error and other basic concepts	
学习目标: Learning Objectives	了解: Recognize	几种基本的抽样方法与抽样调查程序 Several basic sampling methods and sampling survey procedures
	理解: Understand	精度与费用的关系 The relationship between accuracy and cost
	掌握: Master	总体、样本、抽样框、抽样误差等基本概念 Basic concepts such as population, sample, sampling frame and sampling error
德育目标 Moral Objectives		
重点: Key Points	总体、样本、抽样框、抽样误差等基本概念 Basic concepts such as population, sample, sampling frame and sampling error	
难点: Focal points	精度与费用的关系 The relationship between accuracy and cost	

知识单元序号: Knowledge Unit No.	3	支撑教学目标: SLOs Supported	1-3
知识单元名称 Unit Title	简单随机抽样 Simple random sampling		
知识点: Knowledge Delivery	简单随机抽样的定义及抽选方法 The definition and selection method of simple random sampling		
	估计量的结论与性质 Conclusions and properties of estimators		
	影响样本量的因素及确定样本量的方法与原则 Factors affecting sample size and methods and principles for determining sample size		
	简单随机抽样的其它有关问题 Other related issues of simple random sampling		
学习目标: Learning Objectives	了解: Recognize	影响样本量的因素 Factors affecting sample size	
	理解: Understand	估计量的结论与性质 Conclusions and Properties of estimators	
	掌握: Master	简单随机抽样的定义及抽选方法, 估计量的结论与性质, 确定样本量的方法与原则 Definition and selection methods of simple random sampling, conclusions and properties of estimators, methods and principles for determining sample size	
德育目标 Moral Objectives			
重点: Key Points	随机抽样的抽选方法 Random sampling method		
难点: Focal points	确定样本量的方法和原则 Methods and principles for determining sample size		

知识单元序号: Knowledge Unit No.	4	支撑教学目标: SLOs Supported	1-3
知识单元名称 Unit Title	分层随机抽样 Stratified random sampling		
知识点: Knowledge Delivery	分层抽样与分层随机抽样的含义 The meaning of stratified sampling and stratified random sampling		
	估计量的结论与性质 Conclusions and properties of estimators		
	总样本量的分配及确定 Allocation and determination of total sample size		
	分层抽样中的其他问题 Other issues in stratified sampling		
学习目标: Learning Objectives	了解: Recognize	分层抽样的若干问题 Several issues on stratified Sampling	
	理解: Understand	估计量的结论与性质, 影响抽样精度的因素并掌握样本量分配的原则 The conclusions and properties of estimators, factors that affect sampling accuracy, and the principles of sample size allocation	
	掌握: Master	分层抽样的定义, 使用场合, 估计量的结论与性质 Definition, usage scenarios, conclusions and properties of estimators for stratified sampling	
德育目标 Moral Objectives			
重点: Key Points	估计量的结论与性质 Conclusions and properties of estimators		
难点: Focal points	样本量分配的原则 Principles of sample size allocation		

知识单元序号: Knowledge Unit No.	5	支撑教学目标: SLOs Supported	1-3
知识单元名称 Unit Title	比估计与回归估计 Ratio estimation and regression estimation		
知识点: Knowledge Delivery	比估计 Ratio estimation		
	回归估计 Regression estimation		
	分层比估计与分层回归估计 Stratified ratio estimation and stratified regression estimation		
	比估计与回归估计及其方差估计的偏倚 Bias in ratio estimation, regression estimation, and variance estimation		
学习目标: Learning Objectives	了解: Recognize		
	理解: Understand		
	掌握: Master	比估计、回归估计、分层比估计与分层回归估计、比估计与回归估计及其方差估计的偏倚 Ratio estimation, regression estimation, stratified ratio estimation and stratified regression estimation, bias in	

		ratio estimation, regression estimation, and variance estimation
德育目标 Moral Objectives		
重点: Key Points	比估计, 回归估计, 分层比估计与分层回归估计 Ratio estimation, regression estimation, stratified ratio estimation and stratified regression estimation	
难点: Focal points	分层比估计与分层回归估计, 比估计与回归估计及其方差估计的偏倚 stratified ratio estimation and stratified regression estimation, bias in ratio estimation, regression estimation, and variance estimation	

知识单元序号: Knowledge Unit No.	6	支撑教学目标: SLOs Supported	1-3
知识单元名称 Unit Title	不等概率抽样 Unequal probability sampling		
知识点: Knowledge Delivery	不等概率抽样概述 Overview of Unequal Probability Sampling		
	PPS 与 $\pi$ PS 抽样的概念、抽样方法 The concept and sampling method of PPS and $\pi$ PS sampling		
	PPS 与 $\pi$ PS 抽样估计量的结论与性质 Conclusion and properties of PPS and $\pi$ PS sampling estimators		
学习目标: Learning Objectives	了解: Recognize		
	理解: Understand	PPS 与 $\pi$ PS 抽样估计量的结论与性质 Conclusion and properties of PPS and $\pi$ PS sampling estimators	
	掌握: Master	PPS 与 $\pi$ PS 抽样的概念、抽样方法, PPS 与 $\pi$ PS 抽样估计量的结论与性质 The concept and sampling method of PPS and $\pi$ PS sampling, conclusion and properties of PPS and $\pi$ PS sampling estimators	
德育目标 Moral Objectives			
重点: Key Points	PPS 与 $\pi$ PS 抽样的抽样方法 The sampling method of PPS and $\pi$ PS sampling		
难点: Focal points	PPS 与 $\pi$ PS 抽样估计量的结论与性质 Conclusion and properties of PPS and $\pi$ PS sampling estimators		

知识单元序号: Knowledge Unit No.	7	支撑教学目标: SLOs Supported	1-3
知识单元名称 Unit Title	二重抽样 Double sampling		
知识点: Knowledge Delivery	分层的二重抽样 Stratified double sampling		
	为 PPS 抽样的二重抽样 Double sampling for PPS sampling		
	为比估计与回归估计的二重抽样 Double sampling for ratio estimation and regression estimation		
	二重抽样样本量的最优分配 Optimal allocation of sample size for double sampling		

	连续抽样中的样本轮换及其估计 Sample rotation and its estimation in sequential sampling	
学习目标: Learning Objectives	了解: Recognize	
	理解: Understand	
	掌握: Master	分层的二层抽样、为 PPS 抽样的二重抽样、为比估计与回归估计的二重抽样、二重抽样样本量的最优分配、连续抽样中的样本轮换及其估计 Stratified double sampling, double sampling for PPS sampling, double sampling for ratio estimation and regression estimation, optimal allocation of sample size for double sampling, sample rotation and its estimation in sequential sampling
德育目标 Moral Objectives		
重点: Key Points	分层的二层抽样、为 PPS 抽样的二重抽样、为比估计与回归估计的二重抽样、二重抽样样本量的最优分配、连续抽样中的样本轮换及其估计 Stratified double sampling, double sampling for PPS sampling, double sampling for ratio estimation and regression estimation, optimal allocation of sample size for double sampling, sample rotation and its estimation in sequential sampling	
难点: Focal points	二重抽样样本量的最优分配、连续抽样中的样本轮换及其估计 Optimal allocation of sample size for double sampling, sample rotation and its estimation in sequential sampling	

知识单元序号: Knowledge Unit No.	8	支撑教学目标: SLOs Supported	1-3
知识单元名称 Unit Title	整群抽样 Cluster sampling		
知识点: Knowledge Delivery	整群抽样的概念、特点和方法 The concept, characteristics, and methods of cluster sampling		
	分群原则 The principle of clustering		
	群大小的衡量尺度 Measurement scale of cluster size		
	整群抽样与分层抽样的比较 Comparison between cluster sampling and stratified sampling		
	整群抽样估计的各种方法及性质 Various methods and properties of cluster sampling estimation		
学习目标: Learning Objectives	了解: Recognize	整群抽样的概念、分群原则 The concept of cluster sampling, the principle of clustering	
	理解: Understand		
	掌握: Master	整群抽样估计的各种方法及性质 Various methods and properties of cluster sampling estimation	

德育目标 Moral Objectives	
重点: Key Points	分群原则 The principle of clustering
难点: Focal points	群大小的衡量尺度 Measurement scale of cluster size

知识单元序号: Knowledge Unit No.	9	支撑教学目标: SLOs Supported	1-3
知识单元名称 Unit Title	二阶及多阶抽样 Two-stage and multi-stage sampling		
知识点: Knowledge Delivery	初级单元大小相等的二阶抽样 Two-stage sampling with equal primary unit sizes		
	初级单元大小不等时的二阶抽样 Two-stage sampling with unequal primary unit sizes		
	三阶及多阶抽样 Three -stage and multi-stage sampling		
学习目标: Learning Objectives	了解: Recognize		
	理解: Understand		
	掌握: Master	初级单元大小相等的二阶抽样、初级单元大小不等时的二阶抽样、三阶及多阶抽样 Two-stage sampling with equal primary unit sizes, two-stage sampling with unequal primary unit sizes, three -stage and multi-stage sampling	
德育目标 Moral Objectives			
重点: Key Points	初级单元大小相等的二阶抽样、初级单元大小不等时的二阶抽样、三阶及多阶抽样 Two-stage sampling with equal primary unit sizes, two-stage sampling with unequal primary unit sizes, three -stage and multi-stage sampling		
难点: Focal points	初级单元大小不等时的二阶抽样 Two-stage sampling with unequal primary unit sizes		

知识单元序号: Knowledge Unit No.	10	支撑教学目标: SLOs Supported	1-3
知识单元名称 Unit Title	系统抽样 Systematic sampling		
知识点: Knowledge Delivery	系统抽样的定义、作用与特点 Definition, role, and characteristics of systematic sampling		
	各种不同的系统抽样方法 Various systematic sampling methods		
	系统抽样估计量及其方差估计的有关问题 Issues related to systematic sampling estimators and their variance estimation		
学习目标: Learning Objectives	了解: Recognize	系统抽样估计量及其方差估计的有关问题 Issues related to systematic sampling estimators and their	



		variance estimation
	理解: Understand	
	掌握: Master	系统抽样的定义、作用与特点、各种不同的系统抽样方法 Definition, role, and characteristics of systematic sampling, various systematic sampling methods
德育目标 Moral Objectives		
重点: Key Points	各种不同的系统抽样方法 Various systematic sampling methods	
难点: Focal points	各种不同的系统抽样方法 Various systematic sampling methods	

#### 四、教学安排 Teaching Schedule

注：可根据实际情况增减行数

Note: Please add/reduce lines based on subject.

教学内容 Teaching Content	学时(周)Hour(Week)			
	理论 LECT.	实验 EXP.	课外实践 PBL	集中实践 PRAC.
概论 Introduction	1			
基本概念 Basic concepts	1			
简单随机抽样 Simple random sampling	6			
分层随机抽样 Stratified random sampling	6			
比估计与回归估计 Ratio estimation and regression estimation	6			
不等概率抽样 Unequal probability sampling	4			
二重抽样 Double sampling	4			
整群抽样 Cluster sampling	4			
二阶及多阶抽样 Two-stage and multi-stage sampling	4			
系统抽样 Systematic sampling	4			
总计 Total	40			

#### 五、教学方法 Teaching Methodology

注：可根据实际情况增减行数或修改内容

Note: Please add/reduce lines or revise content based on subject.

勾选 Check	教学方法与特色 Teaching Methodology & Characters
<input checked="" type="checkbox"/>	多媒体教学：基于信息化设备的课堂教学 Multi-media-basedlecturing
<input checked="" type="checkbox"/>	实践能力传授：理论与行业、实际案例相结合 Combining theory with industrial practical problems
<input checked="" type="checkbox"/>	课程思政建设：知识讲授与德育相结合 Knowledgedeliverywithethiceducation
<input type="checkbox"/>	PBL 教学：问题驱动的分组学习与交流 Problem-basedlearning
<input type="checkbox"/>	其他:单击或点击此处输入文字。 Other:单击或点击此处输入文字。

## 六、成绩评定 Assessment

注：可根据实际情况增减行数或修改内容

Note: Please add/reduce lines or revise content based on subject.

考核环节: Assessment Content	平时 Behavior	环节负责人: Director	韩鹏
给分形式: Result Type	百分制 Marks	课程总成绩比重(%): Percentage (%)	40
考核方式: Measures	<p>1、出勤：本门课程的所有环节均要求学生参与。出勤成绩占总成绩的 10%。每缺勤一次扣 2 分。缺勤 4 次时谈话提醒，缺课（包括请假和旷课）超过 1/3，取消本门课程的考试资格。</p> <p>2、作业：本门课程有 5 次课内作业，要求学生必须独立完成并在规定时间提交。作业成绩占总成绩的 30%，每次作业占 6%。未按时提交作业或作业有抄袭（雷同）现象的，根据情节严重性进行扣分或成绩按零分计。</p> <p>3、平时成绩包括出勤、作业，平时成绩不及格的学生，取消考试资格。</p>		

考核环节: Assessment Content	期末 Final	环节负责人: Director	韩鹏
给分形式: Result Type	百分制 Marks	课程总成绩比重(%): Percentage (%)	60
考核方式: Measures	满分 100 分，通过批阅期末考试试卷给出学生成绩。		

## 七、改进机制 Improvement Mechanism

注：未尽事宜以教学团队以及学院教学指导委员会商定为准。

Note: Matters not covered in this file shall be determined by TAB of SSTC, NEU.

<b>教学大纲改进机制 Subject Syllabus Improvement Mechanism</b>			
考核周期(年): Check Period (YR)	4	修订周期(年): Revise Period (YR)	4
改进措施: Measures	课程负责人根据课程教学内容与人才培养目标组织课程团队讨论并修改教学大纲，报分管教学工作副院长审核后由执行院长批准。 The subject coordinator shall be responsible for the syllabus discussion and improvement, and the revised version shall be submitted to deputy dean (teaching affairs) for reviewing then to executive dean for approval.		
<b>成绩评定改进机制 Assessment Improvement Mechanism</b>			
考核周期(年): Check Period (YR)	1	修订周期(年): Revise Period (YR)	1
改进措施: Measures	课程负责人根据课程教学内容、课堂教学效果以及成绩分布，对课程教学方法和成绩评定环节进行改进，并同步优化评定办法。 The subject coordinator shall revise the syllabus based on the teaching content, effect and result distribution while optimize the assessment measures.		