**Jimma University**

**College of Natural Science**

**Department of Statistics**

**Course title/Code**: Research Methods and Sample Surveying Practice(Stat 2032)

**Module Title/Code**: Sampling Theory and Research Methods (Stat-M2031)

 **Credit:** 5EtECTS

**Course Description**

Concepts of research, tools of research, stating research problem, research proposal writing, literature review and writing research report; sample survey practice: identification of sources of data, preparation of sampling frames, choice of design, selection process, and estimation procedures, methods of data collection, questionnaire design, survey cost estimation, pilot survey and pre-tests, organization of field work, recruiting and training, data collection, supervision and quality checking, data processing, analysis and presentation of findings, and non-sampling errors in surveys, application of sample survey practice.

**Objectives**

* To understand principles underling statistical consultancy.
* To demonstrate how to develop proposal

**Learning Outcome**

* Understand the basic research methodology,
* write research proposals in their specific areas,
* write research report
* Understand how to prepare actual sample survey design, collect data, process and analyze data,
* Understand how to prepare survey instruments, conduct pilot tests
* Identify and design appropriate sampling method for specific data collection problem,
* Understand the whole activities to be performed in the process of sample survey,

**Course Content**

**1. Research Methods (5 hours)**

1.1 Introduction: Concepts and definition of research

1.2 Dimension of Research

1.3 Tools of Research

1.4 Stating a Research Problem

1.5 Literature Review

1.6 Research Design

1.7 Research Proposal Writing

1.8 Writing a Research Report

**2. Introduction to Sample Survey (1 hours)**

2.1 The Purpose of Sampling

2.2 Planning of Sample Survey

2.3 Sources of Data

2.4 Advantages of sample survey

**3. Multistage Sampling: Two-Stage Equal Cluster Sampling (3 hours)**

3.1 Simple random sampling

3.2 Stratified random sampling

**4. Preparation of Sampling Frames (2 hours)**

4.1 Definition of Frames

4.2 Types of Sampling Frames

4.3 Frame structures

**5. Sample Design (2 hours)**

5.1 Choice of Sampling Design

5.2 Selection process

5.3 Estimation Procedures

**6. Methods of Data Collection (1 hours)**

6.1 Types of Data Collection Methods

6.3 Importance of combining different data collection techniques

6.4 Ethical Consideration

**7. Instruments of Data Collections (3 hours)**

7.1 Types of Instruments

7.2 Principles of Questionnaire Design

7.3 Types of Questions

7.4 Question Layout

7.5 Open versus Closed Questions

7.6 Common Problems of Question Writing (Phrasing)

7.7 Choice of Reference Period

**8. Pre-tests and Pilot Survey (1 hours)**

8.1 Pre-tests

8.2 Pilot survey

8.3 Specific uses of pilot survey

**9. Survey Cost Estimation (1 hours)**

9.1 Time Scheduling

9.2 Preparation of Budget Proposal

**10. Field Work (1 hours)**

10.1 Organization of Field Work

10.2 Recruitment of Field Workers

10.3 Training of Field Workers

10.4 Management of Field Work

10.5 Supervision and Quality Checks

**11. Survey Analysis (1 hours)**

11.1 Preparation for Data Analysis

11.2 Analysis of Data

11.3 Presenting the Results

**12. Non-sampling Error in Surveys (1 hours)**

12.1 Classification of survey error

12.2 Classification of non-sampling error

**13. Application of Sample Survey Practice: (16 hours)**

13.1 Field visits to gain experience: Students will visit various statistical offices that are engaged in survey design, data collection, data processing, analysis and report writing,

13.2 Students will be given an assignment to conduct small scale sample survey to collect primary data. They will prepare survey design, collect data, process the collected data, analyze and write a report.

**14. Statistical Consultancy (10 hours)**

14.1. General discussion of statistical consulting

14.2. The role of the statistician in the experimental process;

14.3. The tools and training necessary for statistical consulting;

14.4. Principles of good practice of statistical consulting

14.5. Consulting practice

**Textbook:**

1. Kumar, R. S.(1996). Practical Sampling Technique (2nd, Edition). Marcel Deker, New York.

2. Leedy, Paul D. (1997). Practical Research: Planning and Design; Prentice-Hall, Inc., 6 th edition.

**References**

1. Thompson, S. K. (2002). Sampling, 2nd, ed, Wiley, New York.

 2. Chochran, W. G. (1977). Sampling Techniques, 3rd Ed, John Wiley& Sons, Inc.,Newyork

3. Cotter, J. and Nealon, J. (1987). Area Frame Design for Agricultural Surveys. National Agricultural Statistics Service, USDA, Washington.

4. FAO(1996). Conducting Agricultural Censuses and Surveys, FAO Statistical Development Series N0. 6, Rome.

5. Vogel, F. A. (1986). Sample Design and Estimation for Agricultural Sample Surveys, Statistical Reporting Service, NASS/USDA, Washington.

6. Hansen, M. H., Hurwitz, W. N. and Madow, W. G. (1953). Sample Survey Methods and Theory. Vols. I-II, New York: John Wiley& Sons.

7. UN (1992). Handbook of Population and Housing Censuses: Part I, Planning, Organization, and Administration of Population and Housing Censuses. Studies in Methods, Ser. F, No. 54

8. UN (1982). Non-sampling errors in Household Surveys: Sources, Assessment and Control. NHSCP Technical Study.

9. FAO (1995). Multiple Frame Agricultural Surveys-Agricultural Surveys based on area and List Sampling Methods. FAO Statistical Development Series N0. 7, Rome.

10. Henry, G. T. (1990). Practical Sampling. Applied Social Research Methods Series. Sage: Newbury Park, CA.

**Teaching methods**

Lecture, Reading Assignment, Projects, Tutorial and Simple case study

 **Mode of Assessment**

Report 50%

Comprehensive exam 50%

Total 100%