

LIS- 302 RESEARCH METHODS AND STATISTICAL TECHNIQUES (4 Credits)

Objectives:

- To acquaint with foundation of research, various methods, planning, designing, reporting in the field of library and information science.
- To sensitize with statistical and Quantitative techniques useful for analysis of data and application to literature analysis.

Method of Instruction: A combination of lectures, discussions, guest lecturers (where possible) and special presentations will form the methods of instruction. The instruction will be followed with an examination at the close of the semester carrying 80 marks covering all units with three types of questions (Very Short, and Short Long) to be solved within 2 1/2hrs. Besides, internal assessment of 20 marks will be assessed on attendance, performance in presentations, assignments and symposiums

UNIT I: Research: Concept and Design

- 1.1 Research: Foundations, Need & Ethics with special reference to online ethics.
- 1.2 Research: Types, Steps and Barriers.
- 1.3 Current trends in LIS Research.
- 1.4 Research Design/Research Proposal: Structure and preparation of a model synopsis.
- 1.5 Hypothesis: formulation, types and tests.
- 1.6 Literature Review through Traditional and e-Medium sources: Methods, Techniques and Presentation.
- 1.7 Citation and referencing Styles : General, Footnote, MLA, Chicago, Turabian with Special emphasis on APA Style.
 - 1.7.1 Online Citation and Reference Management Tools (World Cat, Cross Ref RefWorks, EndNote, Zotero, CiteULike etc.)

UNIT II: Research Methods

- 2.1 Research Methods:
 - 2.1.1: Historical: Definition, Characteristics and Stages/Procedures
 - 2.1.2: Descriptive: Definition, Characteristics and Stages/procedures.
(Survey, Case Study, Development Studies & Content Analysis)
 - 2.1.3: Experimental: Definition, Characteristics, Steps/Procedures, Spiral of Scientific Method

2.1.4: Applications of Historical, Descriptive and Experimental Research Methods to LIS

- 2.2 Data Analysis Softwares and Applications: SPSS, Minitab and MS-Excel
 2.3 Research Report: Form, Structure, guidelines and standards.

Unit III: Statistical Methods

- 3.1 Statistical methods: Definition, Need and significance. Features of Quantitative data. Types of data. Frequency distribution etc.
 3.2 Collection of data: Various methods (Merits, demerits, significance). Design of a Structured Questionnaire.
 3.3 Sampling: concept, types and techniques.
 3.4 Presentation of data : Tabular, Diagrammatic and graphic methods : significance in Library and information data .
 3.5 Measures of Central tendency: Estimation of Mean, Mode, Median and Geometric Mean .
 3.6 Measures of Dispersion. Estimation of Quartile Deviation, Mean Deviation, Standard Deviation , Skewness , Kurtosis and Regression : An Overview.
 3.7 Time series analysis: Introduction and Estimation: An overview.
 3.8 Correlation analysis : Basic Introduction and Estimation: An overview.
 (Numerical problems will form part of the curriculum)

Unit IV: Bibliometrics, Scientometrics and Webometrics

- 4.1 Bibliometrics, Scientometrics and Webometrics: Concept, Genesis and development.
 4.2 Bibliometric Laws: Bradford, Zipf and Lotka.
 4.3 Citation analysis and studies: Concept, techniques and select case studies.
 4.4 Bibliographic measures: Ranking, Obsolescence. Coupling, impact factor, distribution Parameters etc.
 4.5 User study and measures: Quantitative Techniques only
 (Case studies of select measures will form part of the course)

Suggested Readings:

Arora, P.N., & Arora, S. (2000). *CA Foundation course statistics*. (4th Rev.ed.)New Delhi: S.Chand.

Baker, Lynda. (2006). *Research methods*. U.S.A: John Hopkins University Press.

Busha, Charles.H. & Harter, Stephen, H. (1988). *Research Methods in librarianship: techniques and interpretation*. New York: Academic Press.

- Croxton, Frederick.E. (1969). *Applied general statistics*. (3rd ed). New Delhi: Prentice Hall.
- Denzin, Norman. K., & Lincoln, Yvonna. S. (1994). *Handbook of qualitative research*. Thousand Oaks: Sage Publications.
- Elhance, D.N. (2005). *Fundamentals of statistics*. Allhabad: Kitab Mahal.
- Frankfort, Chava. & Nachmias, David. (1999). *Research methods in social sciences*. (6th ed. New Yor:Worth Publishers.
- Goode, William. J. & Hatt, Paul.K. (1952). *Methods in social research*. New York, McGraw-Hill.
- Gosh, B.N. (1984). *Scientific method and social research* (2nd ed.).Delhi: Sterling.
- Goswami, Prakriti. Ranjan. (1996). *Statistical information system and libraries*. New Delhi: Anmol Pub.
- Gupta, S.C., & Kapoor, V.K. (2001). *Fundamentals of mathematical statistics*. NewDelhi: Sultan Chand.
- James, T.Mc Clave. (2005). *First course in statistics*. (9th ed.). New Delhi: Prentice Hall.
- Khanna, J.K. (1997). *Library Compendium*. New Delhi: Beacon Books.
- Krishan Kumar. (1999). *Research Methods in Library and Information Science*. (2nd Rev. ed.). New Delhi: Har-Anand Publications.
- Powell, Ronald.R.,& Connaway, Lynn. Silipigni. (2004). *Basic research methods for librarians*. West Port, Conn : Libraries Unlimited
- Sharma, Ram. Dutta. (1988). *Research methods in social sciences*. New Delhi: National Book Organization.
- Sharma, Pandey. S.K. (1996). *Librarian's knowledge of knowledge (including research methodology)*. New Delhi: Ess Ess.
- Simpson, I.S. (1988). *Basic statistics for librarians*. (3rd Rev ed.). U.K: Library Association.
- Singh, S.P. (2002). *Research methods in social sciences: a manual for designing questionnaire*. New Delhi: Kanishka Publishers.
- Somekh, Bridget., & Lewin, Cathy. (2005). *Research methods in the social sciences*. London: Sage Publications.

Sproull, Natalie.L. (1988). *Handbook of research methods: a guide for practioners and students in social sciences*. Metuchen, N.J: Scarecrow Press.

Trochim, William. M.K. (2003). *Research Methods* (2nd ed.). New Delhi: Biztantra.