INTRODUCTION TO NURSING RESEARCH AND STATISTICS

Total Hours: 185   Theory Hours: 65   Practical/Clinical Hours: 120

SECTION B - INTRODUCTION TO STATISTICS

Total Hours: 25   Theory Hours: 25

AIM:

The course is designed to assist the student to develop an understanding of basic concepts of research, use the findings of nursing research in nursing practice, apply the knowledge in conducting project(s) and solve the problems related to nursing using scientific methods.

OBJECTIVES:

At the end of course the students are able to:

1. Define the terms and concepts of statistics.
2. Identify need and scope of statistics in nursing research.
3. Enumerate steps of data analysis and present data summary in tabular form.
4. Use descriptive and co relational statistics in data analysis.

CONTENTS:

Unit I -Introduction to Statistics:

- Biostatistics and Vital Statistics.Definition, meaning and uses.Notations and terminologies.Purposes/objectives.**Estimation of the trends**
- **Crude rates, standardized rates, ratios**

Unit II -Presentation of Data:

- Definition.Types/Classification.Presentation of data.
- **Frequency distribution ,Type of measures, frequency , class interval**

Unit III -Percentile and measure of central tendency:

- Percentage and range. Percentiles.Mean.Median.Mode.
- Interrelation of mean, mode and median.

Unit IV -Probability:

- Definition and basic concept.Laws of probability.
- Theoretical Distribution:Normal Distribution, Multimodal and Binomial Distribution.Normal curve and properties.
- Mean median and mode in normal distribution, Multimodal distribution.

Unit V -Measure of Variability:

- Types of variability:Range, Average deviation, standard deviation, Standard error of mean. Coefficient of deviation.
- **Introduction to computers and disk operating system**
- **Introduction to data base**
- **Introduction to word processing**
- **Introduction to internet and use of electronic mail**
- **Uses of computers in research**
- **Windows applications ,**
- **Word, excel**
- **Power point, multimedia**
- **Uses of statistical package**
- **Computer aided teaching and testing**

Unit VI –Correlation:

- Computation of correlation coefficient
- Rank Correlation coefficient
- Uses of correlation coefficient
- Inferential statistics.
- **Definition and uses of ANOVA and ANCOVA**
- **Student's paired and unpaired t-test , Z-test**
- **Rank correlation coefficient**

Note: *Numerical exercise to be given where ever applicable and feasible*

INTRODUCTION TO NURSING RESEARCH AND STATISTICS
SECTION B: INTRODUCTION TO STATISTICS

Unit No. & Hrs.	Objectives	Contents						
		Must know 60%				**Desirable to know30%**		**Nice to know10%**
I (3 Hrs.)	At the end of the unit the students are able to : **Knowledge:** Define Biostatistics and Vital statistics. Discuss the uses of statistics in nursing. **Skill:** Use the appropriate notations and terminologies in research. **Attitude:** Incorporate the knowledge of statistics in nursing practice.	**Introduction:** • Biostatistics and Vital Statistics. • Definition, meaning and uses. • Notations and terminologies. • Purposes/objectives.(1Hr)				• **Estimation of trends. (1Hrs)** • **Crude Rates and Standardized rates, ratio(1hr)**		
		Clinician /Nurse Educator	Professional	Communicator	Leader and member of the health care team and system	Lifelong learner	Critical thinker	Researcher
C01-Defined and explain biostatistics and vital statistics		3	2	2	1	2	2	3
C02-Defined notations		1	1	1	1	1	1	1
CO3-Enlist and enumerate purpose and objectives		3	2	2	1	2	2	2
C04-Explain the estimation of trends		1	1	1	1	1	1	1
C05- Explain crude rates and standardized rates, ratio		3	2	2	1	2	2	3
II (4 Hrs.)	At the end of the unit the students are able to : **Knowledge:** Discuss the classification of data. **Skill:** Classify and present the data correctly. **Attitude:** Use the knowledge of data classification in daily nursing practice.	**Data and Information:** • Definition, • Types/Classification. • **Frequency distribution ,Type of measures and frequency (2Hr)**				• Presentation of data • Class interval (2Hrs)		
		Clinician /Nurse Educator	Professional	Communicator	Leader and member of the health care team and	Lifelong learner	Critical thinker	Researcher

						system		
CO1-Define , enumerate, classify frequency distribution		**3**	**2**	**2**	**1**	**2**	**2**	**3**
CO2- Define , enumerate, classify measures and frequency		**3**	**2**	**2**	**1**	**2**	**2**	**3**
CO3-Define. explain , describe Presentation of data		**3**	**2**	**2**	**1**	**2**	**2**	**2**
CO4- Define. explain , describe class interval		**3**	**2**	**2**	**1**	**2**	**2**	**2**
III (5 Hrs.)	At the end of the unit the students are able to : **Knowledge:** Explain the measure of central tendency. **Skill:** Calculate the mean, median and mode.	**Percentile and measure of central tendency:** • Percentage and range .Percentiles .Mean. Median. Mode. (4Hrs)						• Interrelation of mean, mode and median.(1Hr)
		Clinician /Nurse Educator	Professional	Communicator	Leader and member of the health care team and system	Lifelong learner	Critical thinker	Researcher
CO1-Define, enumerate, and explain Percentage and range		**3**	**2**	**2**	**1**	**2**	**2**	**2**
CO2- Define, enumerate, explain Percentiles		**3**	**2**	**2**	**1**	**2**	**2**	**2**
CO3- Define, enumerate, explain Mean. Median. Mode		**3**	**2**	**2**	**1**	**2**	**2**	**3**
CO4- Define , enumerate, explain Interrelation of mean, mode and median		**3**	**2**	**2**	**1**	**2**	**2**	**3**
IV (5Hrs.)	At the end of the unit the students are able to : **Knowledge:** Understand the normal curve and its properties. **Skill:** Calculate the mean, median and mode.	**Probability:** • Definition and basic concept.Laws of probability. Theoretical Distribution: Normal Distribution, Multimodal and Binomial Distribution. Normal curve and properties. (4Hrs)						• Mean median and mode in normal distribution, Multimodal distribution. (1Hr)
		Clinician /Nurse	Professional	Communicator	Leader and member of the	Lifelong	Critical thinker	Researcher

		Educator / Clinician /Nurse Educator	Professional	Communicator	health care team and system / Leader and member of the health care team	learner / Lifelong learner	Critical thinker	Researcher
CO1-Define , enumerate , explain Laws of probability		**3**	**2**	**1**	**1**	1	1	1
CO2-Explain , describe Theoretical Distribution		**3**	**2**	**2**	**1**	**2**	**2**	**2**
CO3-Explain , describe Normal Distribution		**3**	**2**	**2**	**1**	**2**	**2**	**3**
CO4-Explain , describe Multimodal and Binomial Distribution		**2**	**2**	**2**	**1**	1	1	1
CO5-Illustrate , explain Normal curve and properties		**2**	**2**	**1**	**1**	2	2	1
CO6-Define, enumerate , explain , describe Mean median and mode in normal distribution		**3**	**2**	**2**	**1**	**2**	**2**	**3**
CO7-Define, enumerate , explain , describe Multimodal distribution		**2**	**2**	**1**	**1**	2	2	1

V (4Hrs)	At the end of the unit the students are able to : **Knowledge:** Explain the measure of variability. **Skill:** Calculate the standard deviation.	**Measure of Variability:Types of variability** – • Range, Average deviation, standard deviation, Standard error of mean. Coefficient of deviation. .(3Hrs)				• **Introduction to computers and disk operating system** • **Introduction to data base** • **Introduction to word processing** • **Introduction to internet and use of electronic mail** • **Uses of computers in research** • **Windows applications ,** • **Word, excel** • **Power point, multimedia** • **Uses of statistical package** • **Computer aided teaching and testing (1 Hr)**		
		Clinician /Nurse Educator	Professional	Communicator	Leader and member of the health care team	Lifelong learner	Critical thinker	Researcher

	Clinician/Nurse Educator	Professional	Communicator	Leader and member of the health care team and system	Lifelong learner	Critical thinker	Researcher
CO1-Define, enlist, explain, and illustrate the Range, Average deviation, standard deviation, Standard error of mean.	3	2	2	1	2	2	3
CO2-Define, enlist , explain, illustrate Coefficient of deviation	2	2	1	1	2	2	1
CO3-Define, enlist , explain, illustrate **Introduction to computers and disk operating system**	3	2	2	1	2	2	3
CO4-Define, enlist , explain, illustrate **Introduction to data base**	2	2	1	1	2	2	1
CO5-Define, enlist, explain, illustrate **Introduction to word processing**	1	1	1	1	2	2	1
CO6Define, enlist , explain, illustrate **Introduction to internet and use of electronic mail**	2	2	1	1	2	2	1
CO7-Explain the Uses of computers in research	3	2	2	1	2	2	3
CO8-Describe the Windows applications	2	2	1	1	2	2	1
CO9-Explain Word, excel	2	2	1	1	2	2	1
CO10-Explain the Power point, multimedia	2	2	1	1	2	2	1
CO11-Describe Uses of statistical package	3	2	2	1	2	2	3
CO12-Explain , describe the Computer aided teaching and testing	3	2	2	1	2	2	3

| VI (4hrs) | At the end of the unit the students are able to : **Knowledge:** Explain the uses of and calculate the correlation coefficient. | **Correlation:**
• Uses of correlation coefficient. (1 hr) | | | • **Definition and uses of ANOVA and ANCOVA**
• **Student's paired and unpaired t-test , Z-test**
• Rank Correlation coefficient.
• Inferential statistics. Computation of correlation coefficient. (3hr) | | |
| | | Clinician /Nurse Educator | Professional | Communicator | Leader and member of the health care team and | Lifelong learner | Critical thinker | Researcher |

					system			
	CO1-Explain the Uses of correlation coefficient	**3**	**2**	**2**	**1**	**2**	**2**	**3**
	C02-Define , explain , enumerate the uses of ANOVA and ANCOVA	**3**	**2**	**2**	**1**	**2**	**2**	**3**
	CO3- Explain, describe , illustrate the Student's paired and unpaired t-test , Z-test	**3**	**2**	**2**	**1**	**2**	**2**	**3**
	CO4-Explain, describe, illustrate Rank Correlation coefficient	**2**	**2**	**1**	**1**	2	2	1
	CO5- Explain, describe, illustrate Inferential statistics.	**2**	**2**	**1**	**1**	2	2	1
	CO6-Explain, describe Computation of correlation coefficient.	**2**	**2**	**1**	**1**	2	2	1
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TEACHING STRATEGY:

Total Teaching Hours: 35   Lecture: 35

TEACHING METHODS:

- Lecture, Demonstration, Symposium, Group Discussion &**Modified Tutorial**

ASSIGNMENTS:

Section 'B' Introduction to statistics
Theory:

Sr. No	Assignments	No./Quantity	Marks Per Assignment	Total Marks
1	Home assignment	One	20	20
2	Class test	One	25	25
			Total Marks	45

A. V. AIDS:

- Over head Projector, L.C.D, Computer Assisted learning, Flip charts, Posters, Black Board

LIST OF RECOMMENDED BOOKS:

- Basavanthappa B.T, Nursing Research.
- Garrett H.E, Statistic in psychology &education
- Mahajan B.K. Methods in Biostatistcs.
- Rose Hott&Budin. Notter's Essentials of Nursing Research 5th edition.
- Practical Nunshall
- , Nursing Research 3rd edition.
- P.K.Indirani, Research methods for Nurses.
- Polit, DF, &Beck C.T, Nursing Research principles &methods 7th edition.
- Polit, Beck & P Hungler, Nursing Research methods, Appraisal &Utilization
- Clifford et al, Getting Research into practice.
- Macnee C.L Understanding Nursing Research: Reading &using Research in Practice.