Course Specification

Course Title:	**Biostatistics for Nursing**
Course Code:	442 NUR - 3
Program:	Bachelor of Science in Nursing
Department:	Nursing
College:	College of Nursing
Institution:	Jazan University, Jazan
Version:	2023
Last Revision Date:	Jan, 2023

Table of Contents

A. General Information about the course

Course Identification

1.	**Credit Hours**	3 Credit Hours (2 hours theory and 1 h practical)

2. **Course Type**

a. University ☐ College ☐ Department ☐ Track ☐ Others ☐

b. Required ☐ Elective ☐

3. **Level / Year at which this course is offered** — 10th level, 4th Year

4. **Course General Description**

This course is designed to target all undergraduate 4th year nursing students. The main purpose of the course is to provide the basic understanding of various aspects of statistical data collection, its analysis, and prediction of health-related statistics in various nursing scenarios for the betterment of the quality of nursing care in Saudi Arabia. It also enables logical thinking and critical analysis of situations in the field on Nursing.

5. **Pre-requirement(s) for this course (if any):**

None

6. **Co-requirement(s) for this course (if any):**

None

7. **Course Main Objective(s)**

Upon completion of this course, students will:

a. Distinguish between the different types of variables and their levels of measurement

b. Differentiate random and non – random sampling

c. Generate the appropriate graphic presentation for a set of data.

d. Construct a frequency distribution.

e. Compute measures of central tendency.

f. Use probability distributions to assess the probability and uncertainty of health outcomes.

g. Interpret confidence intervals around means.

h. Identify type I and type II errors, significance level, p value and power.

i. Perform and interpret one-sample, two-sample, and paired t tests on means.

j. Perform and interpret chi square tests of independence.

k. Compute and interpret Pearson's correlation coefficients.

l. Identify different measures of fertility and mortality

m. Compute and interpret basic measures of hospital statistics and rates

1.	Teaching Mode (Select all that apply)		
No.	Mode of instruction	Contact Hours	Percentage
1.	Traditional Classroom		
2.	e-learning	(2*10) + (1*10)	100%
3.	Hybrid		
	• Traditional Classroom		
	• e-learning		
4.	Distance Learning		

1.	Contact hours (based on academic semester)		
No.	Activity	Contact Hours	
1.	Lectures	10 * 2 = 20	
2.	Laboratory / Studio	10 * 1 = 10	
3.	Field work		
4.	Tutorial		
5.	Others (Specify)		
	Total hours (per semester)	30	

B. Course Learning Outcomes (CLOs), Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Code of CLOs aligned with the Program	Teaching Strategies	Assessment Methods
1.	**Knowledge**			
1.1	Demonstrate scientific knowledge to analyze and articulate theories, concepts, principles, and skills for data analysis.	K1	Traditional teaching Online Classes	MCQs, T/F
1.2	Describe the principles and concepts of data collection, management, and analysis.	K2	Traditional teaching Online Classes	MCQs, Fill in the blanks
1.3	Identify the various aspects of healthcare data, its implications on the role of nursing in health care planning and delivery.	K3	Online Quiz and Assignment	MCQs, T/F, Diagrams
2.	**Skills**			
2.1	Compute basic statistical analysis conducted in nursing practice and research.	S1	Traditional teaching Online Classes	MCQs, Fill in the blanks
2.2	Employ technology and information system skills in biostatistics	S2	Online Quiz and Assignment	MCQs, T/F, Diagrams
2.3	Select appropriate statistical analysis for nursing and related health care research.	S3	Teaching online, Diagrams	MCQs, Fill in the blanks
2.4	Use logic, reasoning and computational skills in nursing field.	S4	Online Quiz, Calculations	MCQs, T/F, Diagrams
2.5	Solve problems and decipher trends in nursing practice for effective analysis and decision making.	S5	Calculations, Assignment	Calculations, MCQs, Short, Long answer

3.	Values			
3.1	Demonstrate professional attitudes and capability with data collection and statistical analysis.	V1	Traditional teaching Online Classes	Assignment, Diagrams
3.2	Display teamwork, management, and leadership skills for professional development	V2	Calculations, Assignment	Assignment

C. Course Contents

No.	List of topics	Contact hours
1.	Introduction to Biostatistics: definitions, types of variables and measurements	1
2.	Data summarization & presentation, Measures of central tendency	4
3.	Sampling, its methods, probability distributions, & its applications	4
4.	Standard error, Confidence interval and sampling distribution	3
5.	Hypothesis testing, Type I / II errors, Measures of dispersion	3
6.	Correlation, its application and significance	3
7.	Regression, application and significance	3
8.	Statistical Tests (Z-test, Test of significance - t-test, Chi square)	3
9.	Hospital statistics I	3
10.	Hospital statistics II	3
	Total	**30**

D. Students Assessment Activities

No.	Assessment Activity	Assessment timing (week)	Percentage of Assessment score
1.	Quiz (Individual Assessment)	4th Week	10
2.	Assignment	7th Week	10
3.	Participation	Continuous	5
4.	Mid-term Exam	7th Week	25
5.	Final-term (Practical)	11th Week	20
6.	Final-term (Theory)	12th Week	30
	Total		**100**

E. Learning Resources & Facilities

1 References and Learning Resources

Essential References	1.Arshad Jawed, Mohammed Yahya Arishi, Rnda Ashgar, Basics of Biostatistics for Nursing Students (2022) Eliva Press, Moldova. 2.Daniel, W. W., & Cross, C. L. (2018). Biostatistics: a foundation for analysis in the health sciences. Wiley. 3.Bernard Rosner (2016) Fundamentals of Biostatistics. Boston, USA, Cengage Learning.
Other Learning Materials	1. Cullum, N., Ciliska, D., Haynes, B., & Marks, S. (Eds.). (2013). Evidence-based nursing: an introduction. John Wiley & Sons 2. Matthew-Maich, N., Ploeg, J., Dobbins, M., & Jack, S. (2013). Supporting the uptake of nursing guidelines: what you really need to know to move nursing guidelines into practice. Worldviews on Evidence-Based Nursing, 10(2), 104-115. 3. Polit, D., & Beck, C. (2012). Essentials of nursing research. Ethics, 23(2). 4. Le, C. T., & Eberly, L. E. (2016). Introductory biostatistics. John Wiley & Sons. 5. Kuss, T., Proulx-Girouard, L., Lovitt, S., Katz, C. B., & Kennelly, P. (1997). A public health nursing model. Public Health Nursing, 14(2), 81-91. 6. Stanhope, M., & Lancaster, J. (2015). Public health nursing-e-book: Population-centered health care in the community. Elsevier Health Sciences. 7. Chernick, M. R. (2011) The Essentials of Biostatistics for Physicians
Supportive References	
Electronic References	

2 Required Facilities and Equipments

Items	Resources
Facilities (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	Classroom with 60 student capacity, equipped with traditional and smart resources.
Technology equipment (projector, smart board, software)	Computer lab. Blackboard software, Online connection, etc. Smart Board with ICT software and internet connection in the classrooms. Audio speakers for voice amplification and audio streaming; lapel and handheld microphones for teacher and students.
Other equipment (depending on the nature of the specialty)	Biostatistics Textbooks and learning resources Digital library

F. Assessment of Course Quality

Assessment Area/Issues	Assessor	Assessment Methods
Effectiveness of teaching	Students	Course Report, Students' teaching evaluation questionnaire, Continuing feedback from students during the semester.
Effectiveness of Students Assessments	Instructors	Course report, CLO Evaluation survey, Continuing feedback from students during the semester.
Quality of Learning Resources	Quality Assurance unit	Students Satisfaction Survey Continuing feedback from students during the semester.
The extent to which CLOs have been achieved	Instructors	Course report, CLO Evaluation survey, Continuing feedback from students during the semester.

Assessor (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify)
Assessment Methods (Direct, Indirect)

G. Specification Approval Data

Council / Committee	Planning & Curriculum Committee, College of Nursing
Reference Number	
Date:	09 February 2023