UNIVERSITY OF MARY
NUR 565 Syllabus
Statistics

Prefix/Course No. NUR 565   **Credit Hours**   3

Course Title Statistics

Course Description: Competent nurses and health care administrators must have a basic understanding of the statistical tests used in health care research studies in order to conduct research studies and to critically review research studies found in research journals. In this course students will develop an understanding of the descriptive and inferential statistics utilized in research studies for the specific purpose of developing the skills required to statistically analyze and interpret research study findings.

University of Mary Mission Statement:
The University of Mary exists to serve the religious, academic, and cultural needs of people in this region and beyond. It takes its tone from the commitment of the Sisters of Annunciation Monastery. These Sisters founded the University and continue to sponsor it today. It is Christian, it is Catholic, and it is Benedictine.

Program Mission Statement: Grounded in the Benedictine tradition we provide academic and nursing practice opportunities that prepare students for leadership in advanced practice and education in health care across a variety of settings along the continuum of care.

Servant Leadership Experience: Servant leadership experiences are based on character building relationships integrated with a solid understanding of what it is to be a servant leader with Jesus Christ as model and the Benedictine values of community, hospitality, moderation, prayer, respect for persons, and service. These values are foundational in character building, ethical decision making, and the integration of the intellectual, spiritual, emotional, and physical aspects of life.
Relationship of servant leadership in this course: As part of serving in health care, nursing professionals need to use knowledge of evidence and intellect skill to determine the best methods of serving patients. This course assists nursing professionals in building statistical knowledge to apply in the ethical decision making process.

Benedictine Experience:
Although communal life inspired by the Rule of St. Benedict stores a vast treasury of Benedictine values, six of these are of particular importance for our life here at the University of Mary . . . Father James P. Shea, President, University of Mary
> **Community** – Striving together for the common good and growing in relationship with God, one another, and self
> [Rule of Benedict 33 – "Let all things be common to all."]
> **Hospitality** – Receiving others as Christ with warmth and attentiveness
> [Rule of Benedict 53 – "Let all be received as Christ."]
> **Moderation** – Honoring all of God's creation and living simply with balance and gratitude
> [Rule of Benedict 31 – "Regard all things as sacred and do everything with moderation."]
> **Prayer**- Attending to the mystery and sacredness of life, abiding in the divine presence, listening and responding to God
> [Rule of Benedict 4 – "Listen intently to holy readings. Give yourself frequently to prayer."]
> **Respect for Persons** – Recognizing the image of God in each person and honoring each one in their giftedness and limitations
> [Rule of Benedict 4 – "Honor everyone and never do to another what you do *not want done to yourself."]*
> **Service** – *Meeting the needs of others in the example of Jesus the servant leader*
> *[Rule of Benedict 35 – "The members should serve one another."]*

Relationship of Benedictine Experience in this course: Community of nursing through proper use and understanding of statistics, hospitality and respect for persons through the interactions with classmates and faculty online, and service as noted in the servant leadership section.

Competence Experience:

Course Outcomes	Master's Essentials in Nursing Competencies	Program Outcomes	University of Mary Graduate Outcomes	Method of Assessment
1. Describe and develop a basic understanding of the major statistical terms, concepts, and methods used in the analysis of research study data.	I, IX	NE: 5, 6, 7 NA: 6, 7, 8 FNP: 3, 5, 6, 7	Professional Competence, Scholarship	• Weekly Quizzes • Weekly Computation Homework • Exams
2. Discriminate between appropriate and inappropriate use of the different statistical methods and effectively apply the appropriate statistical methods required for data analysis.	I, IX	NE: 5, 6, 7 NA: 6, 7, 8 FNP: 3, 5, 6, 7	Professional Competence, Scholarship	• Weekly Quizzes • Weekly Computation Homework • Exams
3. Effectively interpret educational research and the statistical methods utilized to analyze the research data.	I, IV, IX	NE: 5, 6, 7 NA: 6, 7, 8 FNP: 3, 5, 6, 7	Professional Competence, Scholarship, Valuing	• Weekly Quizzes • Weekly Computation Homework • Exams • Nursing Research Analysis Project
4. Demonstrate ability to effectively utilize the assigned computer software package to statistically analyze the data presented in class exercises and assignments.	I, IX	NE: 5, 6, 7 NA: 6, 7, 8 FNP: 3, 5, 6, 7	Professional Competence, Scholarship	• Weekly Quizzes • Weekly Computation Homework • Exams

The University of Mary graduate programs offer its students preparation in the following four areas of competence:

Professional Competence – Graduates engage in the art and science of their profession with leadership and a commitment to excellence.

Environmental Contexts – Graduate differentiate and evaluate relevant environments in contemporary society, and interact effectively with individuals and organizations within the context of those environments.

Scholarship – Graduates access, analyze, evaluate, and process information from a variety of sources to generate new ideas, to influence change, and to disseminate new knowledge.

Valuing – Graduates clarify and defend personal and social values, and act as leaders in recognizing and respecting multiple perspectives, cultural diversity, and the complexity of human relations.
For students to acquire proficiency in these competences, continual assessment of learning in an atmosphere of openness and free inquiry is promoted.

Master's Essentials

I: Background for Practice from Sciences and Humanities
II: Organizational and Systems Leadership
III: Quality Improvement and Safety
IV: Translating and Integrating Scholarship into Practice
V: Informatics and Healthcare Technologies
VI   Health Policy and Advocacy
VII: Interprofessional Collaboration for Improving Patient and Population Health Outcomes
VIII: Clinical Prevention and Population Health for Improving Health
IX: Master's Level Nursing Practice

Nurse Educator Program Outcomes

1. Demonstrates servant leadership
2. Implements curricular revision using appropriate educational principles
3. Utilizes Benedictine values in building an effective learning climate
4. Implements evidence based teaching/learning principles
5. Analyzes and designs measurement and evaluation methods
6. Demonstrates competency required to pursue doctoral education
7. Implements competent holistic nursing at an advanced level
8. Collaborates with others to improve the quality of nursing practice and healthcare

Nurse Administrator Program Outcomes
1. Designs processes to achieve quality, cost-effective and ethical health outcomes
2. Appreciates the complexity of human resource management in today's healthcare
3. Evaluate quality and safety measures
4. Designs a plan of change using principles of servant leadership
5. Collaborates with others to improve the quality of professional nursing practice and health care policy
6. Utilizes evidence based practice for performance improvement
7. Possesses requisite knowledge to pursue doctoral education
8. Uses information technology to improve processes

9. Demonstrates effective principles of change while providing client centered care

Family Nurse Practitioner Program Outcomes
1. Demonstrates competence in health promotion, disease prevention and illness management of individuals, families and communities.
2. Utilize servant leadership principles to affect positive change in primary care and nursing practice along the health care continuum
3. Practice advanced nursing reflectively, guided by theory and expanded knowledge
4. Utilizes Benedictine values to foster a dynamic nurse practitioner-patient relationship that respects, protects, and enhances spiritual integrity, human dignity, cultural diversity and exists to mutually improve patient health outcomes
5. Critically evaluates, synthesizes and integrates theory and research from nursing and related fields, into practice.
6. Demonstrates proficiency in utilization of evidence based practice
7. Posses requisite knowledge to pursue doctoral education
8. Acts as an informed advanced practice nurse in an interprofessional team to influence, negotiate and manage changes in health care policy and health care delivery systems.

Major Assignments:	Approx % of Grade
Weekly Quizzes/Exams	48%
Weekly Homework Assignments	23%
Weekly Discussion Assignments	15%
Nursing Analysis Project	14%

Methods for Evaluation and Grading

Plusses and minuses will be given depending on where the grade falls within the range. The minimum percentages and corresponding points needed to achieve various letter grades are shown below.

<u>**Grading Scale**</u>

94-100	=A
92-93	=A-
90-91	=B+
86-89	=B
84-85	=B-
82-83	=C+
75-81	=C
71-74	=D
<70	=F

Below 84% is considered failing

Students are encouraged to review the Graduate Catalog and the Program Handbook for policies regarding successful academic progression. For example, the Graduate Nursing Handbook indicates a letter grade of less than B- is not passing.

Required Texts and Resource Materials

Kellar, S. B. & Kelvin, E. (2013). **Statistical Methods for Health Care Research, 6th Ed.** Lippincott Williams & Wilkins: Philadelphia. ISBN 978-1-4511-1561-1

Cronk, B.C. (2012). **How to Use SPSS, 7th Edition.** Pyrczak Publishing. ISBN: 1-884-585-99-X

Software: **IBM SPSS version 21 or higher.** Available for a one-year rental to students from OnTheHubeStore at: www.onthehub.com.

Expectations

Since this is a 3 semester credit graduate level course offered over 10 weeks, you can expect to spend approximately **4.5** hours per week interacting on-line and /or onsite and another **9** hours per week studying outside of class time.

Discussions

On-site Students: You are expected to participate in all assigned classroom discussions focused on the content from the readings. Be sure to include citations from where you found your information. In addition, any personal experiences and reflections are a welcome addition.

On-line: You will be expected to follow the directions as outlined within each discussion board in terms of how many times you are required to reply. Be sure to include citations if you are using direct quotes from your sources, but do not "copy and paste" your responses, but rather synthesize your information.

Attendance Policy

Facilitators are required to maintain reports of student attendance and to report absences for each course. At the request of the course facilitator, students may be administratively dropped from the course if they do not attend the initial two weeks of class and have not been in contact with the course facilitator by the close of the second week (last day to drop a course without a grade). Students who do not enter the classroom for two consecutive weeks during the remaining class term without an approved excused absence, may also be administratively withdrawn from the class.

The policy of class attendance is at the discretion of instructors who will explain their written policy during the first week of class. Students are responsible to be familiar with the policy of their instructors. In the case of unexcused absences, students are responsible for work assigned, quizzes, tests or announcements made while absent. For accelerated courses, opportunity to make-up work involving discussion with a peer cohort may not be possible. At the request of the instructor and with approval of the Director of Graduate Nursing Programs, students may be administratively dropped from classes due to excessive absences.

Assignment & Exam Policies

All assignments and projects are to be completed and submitted by the date they are due. No extensions can be granted for the class discussions. All other assignments completed and submitted after assigned deadline are subject to a **_20% reduction in points._** Make up assignments for excused absences may be allowed if completed

within 5 days of the regular scheduled times at the discretion of the instructor. No credit will be given beyond 5 days of the due date.

Statement on Academic Honesty:

Students who cheat perpetrate an intellectual fraud which betrays their own potential, cheapens the honest achievements of others, and undermines the integrity of the university community. Plagiarism is a form of cheating. Students who violate academic honesty fall under the Academic Integrity Policy and are subject to the sanctions under that policy including removal from their programs of study or dismissal from the University.
Policy:
- The instructor will initiate action against a student found cheating while enrolled in a course within seven (7) days of discovery of the infraction. The instructor will formally notify the student and record the action.
- The instructor may apply any of the following sanctions to students found to have cheated during the term of the course.
    - The student will receive a zero for the work in question.
    - The student will be given another opportunity to demonstrate knowledge or skills.
    - The student will be expelled from class with a failing grade.
    - The instructor may recommend additional sanctions to the student's Program Director, the student's Division Chair or Dean, or the University Director of Graduate Studies.

Channel for Communication Relating to this Course
Instructor > Director of Graduate Nursing Program/Chair > Dean School of Health Sciences > Assistant VP for Academic Affairs >VP for Academic Affairs

Statement Regarding Reasonable Accommodations "In compliance with the Americans with Disabilities Act (ADA) and other legal mandates, the University of Mary is committed to working with students with disabilities in determining appropriate and reasonable accommodations for academic and physical needs. It is the responsibility of the student to provide documentation regarding a disability and the need for reasonable accommodation(s)." For assistance and additional information please contact Sister Madelyn Louttit, Director of Student Accessibility Services**,** Room 112, Benedictine Center for Servant Leadership (701) 355-8264.

Course Specific Policies/Procedures/Information

Expectations Exams/Quizzes: All exams are to be completed individually: no use of texting, IM, email, internet, or conversation/collaboration with any other human being. Exams are open book and open notes. Students are able to retake the quiz one time and the higher of the two scores will be accepted.

Expectations Session Homework: Students will complete and compare to answers in the book all homework problems listed by the instructor in each session. Students will post their questions in the forum for the session. Students will also answer questions posted by other students. Students will email the instructor when all problems have been completed and answers have been verified. Emails MUST be sent by the due date and time to receive full credit.

Expectations of Final Project: Students will complete the final project in groups as described on the assignment description handout.

Week	Course Outcome/s Addressed		Total Weekly Time
Session 1 Due Sunday of Week 1 11: 55 pm Interactive Chat	**1, 2, 3, 4**	**Objectives:** 1. Students will understand the course expectations, how to navigate the my.umary.edu system, course assignments and due dates. 2. Students will identify the importance of statistics in the nursing evidence-based process. 3. Students will identify when to use various descriptive statistics analyzes. 4. Students will demonstrate ability to enter and analyze descriptive data with SPSS.	There is an average of 4.5 hours of theory and course readings plus 9 hours of work outside of class
		Instructional Strategies: Readings, Practice Problems, Quiz, Lecture, Discussions	
		Projects/Activities: Chapter Homework Problems, Quiz, Interactive Chat, Discussion Boards	
		Required Reading: Kellar & Kelvin Ch. 1 & 2 Cronk Ch. 1 & 2	
		Discussion Topics: Questions on reading and homework problems; read, review, and discuss assigned nursing article posted on the discussion forum.	
Session 2 Due Sunday of Week 2 11: 55 pm Interactive Chat	**1, 2, 4**	**Objectives:** 1. Students will identify the difference between descriptive and inferential statistics. 2. Students will demonstrate the understanding and ability to calculate probability and the standard normal distribution. 3. Students will demonstrate ability to calculate probability, z scores, percentiles, and confidence intervals.	There is an average of 4.5 hours of theory and course readings plus 9 hours of work outside of class
		Instructional Strategies: Readings, Practice Problems, Quiz, Lecture, Discussions	
		Projects/Activities: Chapter Homework Problems, Quiz, Interactive Chat, Discussion Boards	
		Required Reading: Kellar & Kelvin Ch. 3 Cronk Ch. 3 & 4	
		Discussion Topic: Questions on reading and homework problems	
Session 3 Due Sunday of Week 3 11: 55 pm Interactive Chat	**1, 2, 4**	Objectives: 1.Students will identify the steps for testing a research hypothesis comparing 1 sample with the population norms. 2. Students will demonstrate ability to calculate probability, z scores, percentiles, and confidence intervals. 3. Students will discriminate between Type I and Type II error. 4. Students will compute a confidence interval around a mean.	There is an average of 4.5 hours of theory and course readings plus 9 hours of work outside of class
		Instructional Strategies: Readings, Practice Problems, Quiz, Lecture, Discussion	
		Projects/Activities: Chapter Homework Problems, Quiz, Interactive Chat, Discussion Boards	
		Required Reading: Kellar & Kelvin Ch. 4 Cronk Ch. 6.1, pages 57 to 59	
		Discussion Topic: Questions on reading and homework problems; read, review, and	

		discuss assigned nursing article posted on the discussion forum.	
Session 4 Due Sunday of Week 4 11: 55 pm Interactive Chat **Exam 1** Due Sunday of Week 4 11: 55 pm	1, 2,3, 4	**Objectives:** 1. Students will identify the steps for testing a research hypothesis comparing the means of two unrelated groups. 2. Students will demonstrate the ability to calculate and interpret an independent samples t test and a Mann-Whitney U Test using SPSS. **Instructional Strategies:** Readings, Practice Problems, Quiz, Lecture **Projects/Activities:** Chapter Homework Problems and exercises in Cronk 6.2, 6.3, and 7.1, Quiz, Interactive Chat, Discussion Boards **Required Reading:** Kellar & Kelvin Ch. 5 Cronk Ch. 6.2 to 6.3, pages 59 to 65 Cronk Ch. 7.3, page 101 to 105 **Discussion Topic:** Questions on reading and homework problems; read, review, and discuss assigned nursing article posted on the discussion forum.	There is an average of 4.5 hours of theory and course readings plus 9 hours of work outside of class
Session 5 Due Sunday of Week 5 11: 55 pm	1, 2, 3, 4	**Objectives:** 1. Students will identify the steps for testing a research hypothesis comparing the means of two related groups. 2. Students will demonstrate the ability to calculate and interpret a paired samples t test and a Wilcoxon Matched-Pairs Test using SPSS. **Instructional Strategies:** Readings, Practice Problems, Quiz, Lecture **Projects/Activities:** Chapter Homework Problems and exercises in Cronk 6.4 and 7.4, Quiz, Interactive Chat, Discussion Boards **Required Reading:** Kellar & Kelvin Ch. 6 Cronk Ch. 6.4, pages 65 to 69 Cronk Ch. 7.4, pages 105 to 108 **Discussion Topics:** Questions on reading and homework problems ; read, review, and discuss assigned nursing article posted on the discussion forum.	There is an average of 4.5 hours of theory and course readings plus 9 hours of work outside of class
Session 6 Due Sunday of Week 6 11: 55 pm	1, 2, 3, 4	**Objectives:** 1. Students will identify the steps for testing a research hypothesis comparing the means of three or more unrelated groups. 2. Students will demonstrate the ability to calculate and interpret a One-Way ANOVA test and a Kruskal-Wallis H Test using SPSS. **Instructional Strategies:** Readings, Practice Problems, Quiz, Lecture, Discussion **Projects/Activities:** Chapter Homework Problems, Quiz, Interactive Chat, Discussion **Required Reading:** Kellar & Kelvin Ch. 7 Cronk Ch. 6.5, pages 69 to 74 Cronk Ch. 7.5, pages 108 to 113 **Discussion Topics:** Questions on reading and homework problems; read, review, and discuss assigned nursing article posted on the discussion forum.	There is an average of 4.5 hours of theory and course readings plus 9 hours of work outside of class
Session 7 Due Sunday of Week 7	1, 2, 3	**Objectives:** 1. Students will identify the steps for testing a research hypothesis comparing the means of three or more related groups. 2. Students will demonstrate the ability to calculate and interpret a Repeated Measures ANOVA test and a Friedman's ANOVA by Rank using SPSS.	There is an average of 4.5 hours of theory and course readings plus 9 hours of work

11: 55 pm		**Instructional Strategies:** Readings, Practice Problems, Quiz, Lecture	outside of class
		Projects/Activities: Chapter Homework Problems, Quiz, Interactive Chat, Discussion	
		Required Reading: Kellar & Kelvin Ch. 8 Cronk Ch. 6.7, pages 77 to 81 Cronk Ch. 7.6, pages 113 to 116	
		Discussion Topics: Read, review, and discuss assigned nursing article posted on the discussion forum.	
Session 8 Due Sunday of Week 8 11:55pm Interactive Chat Exam Due Sunday of Week 8 11:55pm	1, 2, 3, 4	**Objectives:** 1. Students will identify the steps for testing a research hypothesis comparing the relationship (Correlation) of two variables. 2. Students will demonstrate the ability to calculate and interpret a Pearson and a Spearman Correlation Coefficient using SPSS. **Instructional Strategies:** Readings, Practice Problems, Quiz, Lecture, Discussion **Projects/Activities:** Chapter Homework Problems, Quiz, Interactive Chat, Discussion **Required Reading:** Kellar & Kelvin Ch. 11 Cronk Ch. 5.1 to 5.2, pages 45 to 50 **Discussion Topics:** Questions on reading and homework problems; read, review, and discuss assigned nursing article posted on the discussion forum.	There is an average of 4.5 hours of theory and course readings plus 9 hours of work outside of class
Session 9 Due Sunday of Week 9 11:55pm Interactive Chat	1, 2, 3, 4	**Objectives:** 1. Students will identify the steps for testing a research hypothesis comparing the relationships between categorical variables. 2. Students will demonstrate the ability to calculate and interpret a Chi-Square Statistic Goodness-of-Fit Test using SPSS. **Instructional Strategies:** Readings, Practice Problems, Quiz, Lecture, Discussion **Projects/Activities:** Chapter Homework Problems, Quiz, Interactive Chat, Discussion Boards **Required Reading:** Kellar & Kelvin Ch. 12 Cronk Ch. 7.1, pages 93 to 97 **Discussion Topics:** Questions on reading and homework problems; read, review, and discuss assigned nursing article posted on the discussion forum.	There is an average of 4.5 hours of theory and course readings plus 9 hours of work outside of class
Session 10 Due FRIDAY of Week 10 11:55pm Interactive Chat	1, 2, 3, 4	**Objectives:** 1. Students will identify the steps for model building with linear regression. 2. Students will demonstrate the ability to calculate and interpret a linear regression model using SPSS. 3. Student will synthesize statistical techniques to analyze the statistics used in a published nursing research article. Instructional Strategies: Readings, Practice Problems, Quiz, Lecture, Group Project **Projects/Activities:** Chapter Homework Problems, Quiz, Interactive Chat, Discussion Boards, Final Project **Required Reading:** Kellar & Kelvin Ch. 14 Cronk Ch 5.3 to 5.4, pages 50 to 56	There is an average of 4.5 hours of theory and course readings plus 9 hours of work outside of class

		Discussion Topic: Questions on reading and homework problems	