

NSG 311: Statistics for Evidence Based Practice in the Health Sciences

Pre-Requisite(s)

None.

Co-Requisite(s)

None.

Credit Hours

3 Credits

Course Format

Complete Online Course

Meeting Days, Times, and Locations

Fully online. No required in-class sessions.

Course Description

This online course is an introduction to the biostatistical concepts and the skills necessary to interpret data for Evidence-Based Practice (EBP) in the Health Sciences. Topics include an introduction to EBP, variation and variables, levels of data measurement, descriptive statistics and data display, probability, statistical and clinical significance, confidence intervals, statistical power analysis, hypothesis testing, and inferential statistics. Statistical techniques introduced are correlation, chi-square, t-test, odds ratios, relative risk, linear regression and an introduction to one-way analysis of variance.

Student Learning Outcomes

At the conclusion of this course, the student will achieve the following identified outcomes.

1. Describe concepts of evidence-based practice for the health sciences.
2. Identify levels of measurement for continuous and categorical variables.
3. Recognize common frequency distributions.
4. Summarize data in terms of central tendency and dispersion.
5. Interpret information on measures of relationships from graphic and narrative formats.
6. Interpret results of inferential statistical tests of group mean differences and for relationships between variables.
7. Interpret inferential statistical analyses in terms of hypothesis testing and confidence intervals.
8. Calculate odds ratio and relative risk ratio.
9. Interpret statistical analyses in published EBP research reports.
10. Differentiate between the statistical significance and the clinical significance of findings.
11. Interpret findings from inferential statistical tests including tests of goodness of fit, homogeneity, independence, correlation, regression and t-tests.

Teaching Methods/Activities

This course uses a combination of methods to facilitate learning/mastery of content. You, the student, are in control of the pace--meaning, you can proceed through the learning modules (or "sessions") as quickly or slowly as needed based on your learning style. The activities embedded within each learning module are designed to assist you with achieving course objectives. They include:

- Textbook and evidence-based/research article review
- PowerPoint webcasts with printable slides aligned with each text chapter
- Web-based activities: interactive glossary, flash cards, matching exercises

- Article discussion questions and end of chapter review questions
- Course resources – websites and videos that have been helpful to students when learning concepts
- Videos – both YouTube videos and SON videos on various topics

Evaluation Methods/Learning Outcomes

Course Requirement	Percent of Total Grade	Alignment with Student Learning Outcome(s)
1. Online quizzes in Blackboard	100%	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12 & 13

The final grade entered is based on School of Nursing grading system. See *Student Handbook page 22* (<https://www.son.rochester.edu/assets/pdf/studenthandbook.pdf>)

Please note that the date and time for course opening and closing are in Eastern Standard Time (EST). Students will be held to this time zone for the completion of all course quizzes.

My goal is to help you develop an understanding of introductory statistics, the ability to read published reports, and the confidence to trust your interpretation. To help you get there, I must insist that you take full advantage of all the tools provided. The Jones & Bartlett companion website for the required book provides student resources that may be helpful for learning the material, but it is not required for the completion of any assignments or graded quizzes. SPSS is not required and is not taught as part of this course. If you have difficulty with any technology needed to complete this course, please view “Student Resources” in the left menu in Blackboard first. If you do not find what you need there, please contact me for assistance.

There are 13 **online quizzes with multiple choice and true/false questions**. There is one quiz following each module, and together these quizzes constitute 100% of your final grade. There is no extra work available to increase your grade. The number of questions each quiz contains is based on the amount of information covered in each module. You will have 60 minutes to complete each quiz. It is required that you do your own work! I reserve the right to subtract **5%** from your total score for every 5 minutes you go over the time limit. You will only have one attempt to take each quiz, so please be prepared before you begin. The timer will continue even if you close the quiz, so you will not be able to log back in after your 60 minutes is over.

You may use whatever materials you find helpful to study. Some students use the module objectives as an outline and study guide, and some students print the PowerPoint slides and take notes on those. It is strongly recommended that you complete the reading, view the lecture, complete the assignment (in modules 5-13), and take the practice test before you attempt to take the quiz. Assignments are not turned in and exist to reinforce learning and prepare you for the quizzes. There are also different types of learning activities in each module. Please use these as you wish to reinforce the concepts. They are fun and available for students who have varied learning styles. Please note that key concepts from earlier modules are reinforced and re-tested throughout subsequent quizzes, so it is essential that you have a clear understanding before you proceed. I am available to help you--please let me know if you are struggling.

This course is entirely online, so the only way I have to contact you is through your email. You should be checking your email at least 3-4 times per week in case I am trying to contact you. This is extremely important. Please feel free to contact me with any questions.

Grading System (for Undergraduate Programs)

The student’s final numerical grade will be converted to a letter grade based on the following University of Rochester undergraduate student grading criteria:

A	93-100	C	73-76	
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A-	90-92	C-	70-72	"C-" is considered unsatisfactory work for undergraduate students; see <i>Student Handbook</i> for implications.
B+	87-89	D+	67-69	
B	83-86	D	63-66	
B-	80-82	D-	60-62	
C+	77-79	E	<60	Failing grade; see <i>Student Handbook</i> for implications.

Required Textbook(s)

Heavey, E. (2019). *Statistics for nursing: A practical approach* (3rd ed.). Sudbury, MA: Jones & Bartlett Learning.

This textbook is required for class activities, readings and to supplement the online lectures!

Permission has been granted from Jones & Bartlett Publishers to use instructor available materials and media tools in this online course that uses Heavey, *Statistics for nursing: A practical approach (2nd ed.)*, as a required textbook.

Course Outline

Module 1	Introduction to Statistics & Levels of Measurement
Module 2	Presenting Data
Module 3	Descriptive Statistics, Probability, & Measures of Central Tendency
Module 4	Measuring Data
Module 5	Sampling Methods
Module 6	Hypothesis Testing
Module 7	Power
Module 8	Chi Square
Module 9	Student t-Test
Module 10	ANOVA
Module 11	Correlations
Module 12	Regression Analysis
Module 13	Relative Risk, Odds Ratio, & Epidemiology
Module 14	Course Evaluation

ADA Statement and Holidays

See *Student Handbook* (<https://www.son.rochester.edu/assets/pdf/studenthandbook.pdf>)

Academic Honesty Statement

Students are responsible for their own work. Students are expected to have read and to practice principles of academic honesty. See *Student Handbook* (<https://www.son.rochester.edu/assets/pdf/studenthandbook.pdf>) Student attestation is completed on Blackboard for each course.

Professional Behavior/Civility Statement

The University of Rochester, School of Nursing (SON) seeks to provide an environment for learning and teaching that is respectful of diverse persons and points of view in all classroom, electronic, and clinical

settings. Consistent with this goal, it is expected that diverse perspectives and opinions will be expressed and received in a respectful and professional manner. Incivility, intolerance, hate speech, and abusive behaviors are considered professional misconduct and will be acted upon in accordance with the statement in the *Student Handbook*. (<https://www.son.rochester.edu/assets/pdf/studenthandbook.pdf>)

Sexual Harassment Policy

Students are to abide by the University of Rochester Student Sexual Misconduct Policy which can be found in the *Student Handbook* (<https://www.son.rochester.edu/assets/pdf/studenthandbook.pdf>). Faculty review policy in all face-to-face classes.

HIPAA Compliance

Students are to abide by the University of Rochester HIPAA Compliance Guidelines which can be found on the SON website (<http://son.rochester.edu/r/HIPAA-Video>).