*Please note this is a sample course outline, you will be provided with a confirmed course outline with scheduling details on your first day of class.

Lead Instructor: Dr. Elaine Santa Mina  
Lead Instructor Phone: 416.979.5000 x 4559  
Lead Instructor e-mail: esantami@ryerson.ca  
Office and Hours: POD 478 - Hours by appointment, schedule by email please

Every effort will be made to manage the course as stated. However, adjustments may be necessary at the discretion of the instructor. If so, students will be advised and alterations discussed in the class prior to implementation.

It is the responsibility of students to ensure that they understand the University’s policies and procedures, in particular those relating to course management and academic integrity. A list of relevant policies is included at the end of this outline.

Course hours: 3 hours per week  
Pre-requisites: CNUR 850

**COURSE DESCRIPTION:**

In this course the emphasis is on the preparation of statistical data, its analysis and interpretation within the context of the positivist research paradigm in nursing research. Descriptive and inferential statistics will be examined and utilized, from nursing research data bases. Students will use computer technology to process numerical data and conduct statistical analyses. Strategies for critically reviewing, integrating and disseminating statistical findings from nursing research will be discussed as well as the implications of the findings for nursing practice.
NOTE: If you have not previously used Excel software, then prior to this course, it is highly recommended that you read Salkind (2007) Chapters 1A and 1B in order to familiarize yourself with Excel 2003 software; ensure Excel software is loaded correctly on your computer; and practice basic Excel functions (e.g., sums) before statistics assignments begin.

COURSE OBJECTIVE/LEARNING OUTCOMES:
By the end of this course the student will be able to:

1. To demonstrate an understanding of the analysis of statistical data within the context of the research process.

2. To be able to systematically conduct statistical analyses, with the use of Excel software, for nursing research questions.

3. To demonstrate an understanding of, and to critically appraise, the impact of statistical findings on clinical practice and evidence.

TEXTBOOK & READING LISTS:
Required Resources:


Or


Plus required peer reviewed articles for weekly critique. All references are provided below as they are required in each module in blackboard hybrid and online sections and are all available as full text online through the Ryerson library. The rationale for not preloading the articles is to meet the second objective for this course. In order to evaluate research articles the nurse, academic or researcher needs to be able to search for relevant references. This is a skill that takes time to develop, so this course provides opportunities for you to develop search skills. In module one, the basic skills for a simple article search have been provided for you. In module three, a full explanation of complete literature searches will be given. From the references listed below, search for and print the articles online through the Ryerson library to critically analyze the research process, to initiate your discussions with your colleagues and to interpret the findings.


Access to computers with Microsoft Office inclusive of Microsoft Word and Excel (2003, 07 or 10)

Ryerson School of Nursing Handbook, Post diploma students, Bachelor of Science in Nursing at [www.ryerson.ca/nursing](http://www.ryerson.ca/nursing)

**Recommended Resources:**


As per Ryerson policy, all email communication from students (blackboard, turnitin.com, etc) will be via the student's Ryerson email account only.

**METHOD OF INSTRUCTION:**

This course is offered via three different modalities: 1) hybrid for full time day students and part time Continuing Education/Post Diploma Degree Program students, and 2) fully online for Canadian post diploma RNs only.

The use of computers and the internet for literature searches and literature management, and for communication, are essential basic skills for academic work, and they are particularly important in relation to the content and activities of a statistics course. As such, all students must have regular access to a computer, with Microsoft office, inclusive of Microsoft Word software, and Excel 2003, 07, or 10 plus the Internet. All students are expected to participate in online discussions and assignments. All versions of this course will be conducted through the Blackboard course management system.

1) **Post Diploma Day and Continuing Education Course: Hybrid Version**

All components of the course contain a hybrid of conventional in-class and online course delivery modes. The online component is delivered via Blackboard course management system while scheduled in-class time may consist of a combination of lectures, tutorial, small group work, tests, and exams as determined by each instructor.
2) Post Diploma Distance Education Course: Online
All components of the course consist of a fully online course delivery modality, via Blackboard.

**Evaluation:** Online participation, assignments, tests, examinations, and papers.

**Scheduled Hours:**
1) **Day and Hybrid Version:** 2 hours/week in class; 1 hours/week lab/online
2) **Distance Education Version:** 3 hours per week online

**METHOD AND SCHEDULE OF STUDENT EVALUATION:**
Methods of Evaluation:

- Seven (7), weekly mini statistics assignments: 20%
- One (1) major statistics assignment: 30%

All statistics assignments are individual assignments. Do not share electronic or paper files with other students. Do not submit group prepared responses on assignments. Sharing of assignment answers may constitute academic misconduct. Group discussion of software applications to conduct analyses and statistical principles and applications are appropriate and encouraged.

Final Exam: 50%

**NOTE:**

Students must receive an overall, cumulative passing grade across the eight (8) statistics assignments of 63% (31.5/50) AND an overall passing grade on the final examination (31.5) in order to pass this course. Failing either the overall grade for the assignments or the final exam will result in an F in this course.

**Hybrid Version Evaluations:**
Complete submission of all statistics assignments consist of the following two components: 1) an online submission to turnitin.com for plagiarism detection, 2) a hard copy submitted to the instructor at the beginning of class. If the instructor chooses to mark from an online assignment version only, then s/he will notify his/her respective class that the hard copy submission is not required. Otherwise, both components are required on-time to avoid late penalties. The exam for the full time day students occurs during the Ryerson exam weeks schedule. The exam for the part time hybrid sections occurs in class during the scheduled week 13.

**Distance Education Evaluations:** All statistics assignments will be submitted online to turnitin.com. The exam for the online and OTN sections it will be conducted online on the Thursday of the test week (week 13) from 1000-1300 hours.
Please see the Ryerson Student Handbook for academic considerations for tests and examinations. Requests for changes of assignment due dates and/or test dates for vacation schedules will not be considered.

Online Participation:

The online discussion participation evaluation is evaluated in the April exam. Approximately 10% of the questions will be application and interpretation questions from actual research articles. Your participation in the online discussions will develop your critical analysis skills to prepare you.

The majority of the online participation evaluation will be via online submission of weekly, mini statistics assignments (total number of weekly assignments = 7, for 20%). The 8th assignment, the major statistics assignment (30%) will be submitted online also. Students will have an online discussion forum to clarify use of excel for statistical analysis, and to clarify understanding of statistical concepts. In addition, there will be two weeks during which students will engage in online discussion. Articles will be critiqued from a statistical perspective. The Robinson (2001) article and the Santa Mina et al (2006) articles are additional references to support the critical analysis.

All Course Delivery versions: Online Participation:

The online discussion participation is a weekly expectation. Approximately 10% of the final examination questions will be application and interpretation questions from actual research articles, some of which will be based upon the research articles used for the online discussions. Your regular participation in the online discussions will develop your critical analysis skills of statistics to respond to application and interpretation questions.

Every student must gain access to the Ryerson Blackboard course management

You will need a matrix account to access the blackboard course.

Prior to day one of your class it is recommended that you get your matrix account and library card set up.

To get a matrix account / reactivate your matrix account go to: www.ryerson.ca/accounts
To access the blackboard course that you are registered in type the following into your browser: http://my.ryerson.ca

To renew your library card: http://www.ryerson.ca/library/info/distcard_renew.html
To request a new library card: http://www.ryerson.ca/library/info/distcard_new.html

Assignments

Note: A small practice assignment for the use of excel will be given in week one. This assignment is voluntary, but recommended. There is no grade assigned but if submitted, you will be given feedback.

Midterm statistics evaluation composed of seven (7) weekly mini statistics assignments:
Mini stats assignment 1: Release Date: Week: 2, due date: week 3
Mini stats assignment 2: Release Date: Week: 3, due date: week 4
Mini stats assignment 3: Release Date: Week: 4, due date: week 5
Mini stats assignment 4: Release Date: Week: 5, due date: week 6
Mini stats assignment 5: Release Date: Week: 7, due date: week 8
Mini stats assignment 6: Release Date: Week: 8, due date: week 9
Mini stats assignment 7: Release Date: Week: 9, due date: week 10

Therefore Due Dates: week 3, 4, 5, 6, 8, 9, 10

Students will receive an online statistical database relevant to nursing practice. Each of week’s 2-5, and 7-9 inclusive, students will be given a mini statistical assignment. With the database provided, using Excel (2003) software within Microsoft office, each student will conduct the statistical tests as presented during that corresponding week’s class. This is an independent assignment. No group assignments are to be submitted. Papers must be submitted in a Word document, typed double spaced, font 12, Times New Roman script, 1 “ margins. Each student’s name and student number should appear on the title page as per APA format

Mini Stats Assignments: (total accumulative value = 20%;)
Assignment 1/ Week 2: frequency distributions, shapes of distributions, measures of central tendency
Assignment 2/ Week 3: measures of variability, range, standard deviation, z scores
Assignment 3/ Week 3: contingency tables
Assignment 4/ Week 4: correlation, scatter plots
Assignment 5/ Week 7: t test
Assignment 6/ Week 8: ANOVA
Assignment 7/ Week 9: chi square, Pearson r

These are individual assignments and will require the use of Excel. Papers must be submitted in a Word document, typed double spaced, font 12, Times New Roman script, 1 “ margins. Each student’s name and student number should appear on the title page as per APA format

Major Stats Assignment 8:
Release date: week 10; due date week 11: 30%
NOTE:
Your total score across all 8 assignments must be a C (63% or 31.5/50) to pass this course.

The focus of this assignment is the application of statistical principles to analyze and interpret quantitative data. This assignment will build on the cumulative knowledge acquired in online mini assignments 1 through 7 (weeks 1-4; 6-8). This is an individual assignment and it will require the use of Excel. Papers must be submitted in a Word document, typed double spaced, font 12, Times New Roman script, 1 “ margins. Each student’s name and student number should appear on the title page as per APA format
Exam - During exam week for day section, otherwise Week 13 for Continuing Education section) 50%
This multiple choice exam will consist of 80 questions, no calculations, and cover course material from the
term. Approximately 10% of the questions will be derived from articles.
Students must achieve a passing grade of 63% (31.5/50) on this exam in order to pass this course.

NOTE: Final numeric grades are not rounded due to repetitive grading on assignments.

Schedule:

<table>
<thead>
<tr>
<th>Week</th>
<th>Class Content</th>
<th>Learning Activities</th>
<th>Required Readings</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Introduction to Excel</td>
<td>Create your own data</td>
<td>Loiselle et al. (2011) Chapter 9</td>
</tr>
<tr>
<td>2</td>
<td>Descriptive Statistics</td>
<td>Mini stats assignment # 1 is released</td>
<td>Loiselle et al. (2011) Chapter 15,</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Loiselle et al. (2011) Chapter 9</td>
</tr>
<tr>
<td>3</td>
<td>Univariate Descriptive Statistics</td>
<td>Mini stats assignment # 1 is due;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Measures of Variability: Range</td>
<td>Mini stats assignment # 2 is released</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Standard Deviation</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Scores within a Distribution</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Z Scores Standardized Distribution</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Bivariate Descriptive Statistics</td>
<td>Mini stats assignment # 2 is due;</td>
<td>Salkind (2007) Chapter 5, 16</td>
</tr>
<tr>
<td></td>
<td>Contingency Tables, Correlation</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(Pearson r as Descriptive)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Scatter Plots</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Inferential Statistics</td>
<td>Mini stats assignment # 3 is due;</td>
<td>Loiselle et al. (2011) Chapter 15,</td>
</tr>
<tr>
<td></td>
<td>Probability</td>
<td></td>
<td>Salkind (2007) Chapters 7</td>
</tr>
<tr>
<td></td>
<td>Sampling Distributions &amp; Error</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Standard Error of the Mean</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Central Limit Theorem</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Hypothesis Testing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Power Analysis</td>
<td>Mini stats assignment # 4 is due;</td>
<td>Loiselle et al. (2011) Chapter 15,</td>
</tr>
<tr>
<td></td>
<td>Type 1 Type II Errors</td>
<td>Online critique of research to identify</td>
<td>Salkind (2007) Chapter 9</td>
</tr>
<tr>
<td></td>
<td>Level of Significance/Critical regions</td>
<td>level of significance &amp; possible type I/II</td>
<td>Lee et al., (2013).</td>
</tr>
<tr>
<td></td>
<td>Confidence interval</td>
<td>errors</td>
<td></td>
</tr>
<tr>
<td></td>
<td>One-Tailed Two-Tailed tests</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Parametric Tests</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Between Subjects versus Within subjects</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Bivariate Inferential Statistics</td>
<td>Mini stats assignment # 5 is released</td>
<td>Loiselle et al. (2011) Chapter 15,</td>
</tr>
<tr>
<td></td>
<td>T Tests for Independent Groups</td>
<td></td>
<td>Salkind (2007) Chapters 9, 10, 11</td>
</tr>
<tr>
<td></td>
<td>Paired t Tests (dependent groups)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>ANOVA</td>
<td>Mini stats assignment # 5 is due;</td>
<td>Loiselle et al. (2011) Chapter 15</td>
</tr>
<tr>
<td></td>
<td>Between Groups versus Within Groups</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Non Parametric Tests

- Mini stats assignment # 6 is released
- Salkind (2007) Chapter 9 & 12

<table>
<thead>
<tr>
<th>#</th>
<th>Topic</th>
<th>Assignment Details</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
<td>Chi Square</td>
<td>Mini stats assignment # 6 is due;</td>
<td>Loiselle et al. (2011) Chapter 15.</td>
</tr>
<tr>
<td>9</td>
<td>Goodness of Fit</td>
<td></td>
<td>Salkind (2007) Chapters 14, 15, 16</td>
</tr>
<tr>
<td>9</td>
<td>Test for Independence</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Bi-variate Inferential Statistics</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Pearson r as Inferential</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Feb</td>
<td>Reading week for day section</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Multi-variate Statistics</td>
<td>Mini stats assignment # 7 is due</td>
<td>Loiselle et al. (2011) Chapter 15.</td>
</tr>
<tr>
<td></td>
<td>Simple Linear Regression</td>
<td>Major Stats Assignment is released</td>
<td>Salkind (2007) Chapters 14 &amp; 17</td>
</tr>
<tr>
<td>11</td>
<td>Multi-variate statistics continued: Multiple Linear Regression</td>
<td>Major stats assignment is due</td>
<td>Santa Mina et al (2006)</td>
</tr>
<tr>
<td></td>
<td>ANCOVA</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>MANOVA</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>MANCOVA</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Factor Analysis</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Summarizing and Sharing Findings</td>
<td></td>
<td>Lee et al., (2013).</td>
</tr>
<tr>
<td></td>
<td>Review</td>
<td></td>
<td>Robinson (2001)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Final Exam</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Major Stats Assignment 8:**
Release date: week 10; due date week 11: 30%

**NOTE:**
Your total score across all 8 assignments must be a C (63% or 31.5/50) to pass this course.

**Evaluation:** Online participation, assignments, tests, examinations, and papers.

**Scheduled Hours:**

3) **Hybrid Version:**
4) **Distance Education Version:**
   - All components of the course contain a hybrid of conventional in-class and online course delivery modes. The online component is delivered via Blackboard course management system while scheduled in-class time may consist of a combination of lectures, tutorial, small group work, tests, and exams as determined by each instructor.
Post Diploma Distance Education Course: Online
All components of the course consist of a fully online course delivery modality, via Blackboard.

**Assignments:** (a grade break down and the week that the exam or assignment will be due/or take place will suffice)

**MISSED TERM WORK OR EXAMINATIONS:**
Students are expected to complete all assignments, tests, and exams within the time frames and by the dates indicated in this outline. Exemption or deferral of an assignment, term test, or final examination is only permitted for a medical or personal emergency or due to religious observance (request must be received within the first two weeks of the course). The instructor must be notified by e-mail prior to the due date or test/exam date, or as soon as possible after the date, and the appropriate documentation must be submitted. For absence on medical or religious observance grounds, official forms may be downloaded from the Ryerson website at www.ryerson.ca/undergraduate/currentstudents/forms or picked up from The Chang School at Heaslip House, 297 Victoria St., Main Floor.

Exam - During exam week for day section, otherwise Week 13 for Continuing Education section) 50%
This multiple choice exam will consist of 80 questions, no calculations, and cover course material from the term. Approximately 10% of the questions will be derived from articles. Students must achieve a passing grade of 63% (31.5/50) on this exam in order to pass this course.

**Expectations of Students**

Ryerson School of Nursing Handbook, Post Diploma Degree students, Bachelor of Science in Nursing.

**Course Policies:**

1. **Student Code of Conduct:** Students must be familiar with and abide by all University and School of Nursing policies including the “Student Code of Academic Conduct”, the “Student Code of Non-Academic Conduct” and “Professional Conduct”. A student may be WITHDRAWN from the nursing program for reasons of unprofessional behaviour or professional misconduct.

2. All students are required to activate and maintain a Ryerson Matrix email account and access Ryerson mail on a regular basis.

3. Students need to inform faculty of any situation that arises during the semester which may have an adverse effect upon their academic performance and that they must request any necessary considerations (e.g. medical or compassionate), or accommodations [e.g. religious observance, disability (should be registered with the Access Centre), etc.] according to policies and well in advance. Failure to do so will jeopardize any academic appeals.

4. **Turnitin**, an electronic plagiarism detection service, may be used. Students who do not want their work submitted to this plagiarism detection service must, by the end of the second week of class,
consult with the instructor to make alternate arrangements. When an instructor has reason to suspect that an individual piece of work has been plagiarized, the instructor shall be permitted to submit that work to any plagiarism detection service.

You will be expected to submit your paper through the turnitin system. Details of how to submit your paper will be provided in week 1.

5. All students enrolled in the Post Diploma Degree Completion Program in Nursing must have valid or pending registration with the College of Nurses of Ontario (CNO). Students are required to notify the School of Nursing of any change in CNO registration status. Failure to attain/maintain CNO registration will result in WITHDRAWAL from the Nursing course(s) and a REQUIRED TO WITHDRAW status from the program. The exception to the policy of CNO registration are those students from an approved bridging program.

6. Requests for accommodation of specific religious or spiritual observance must be presented to the instructor no later than two weeks prior to the conflict in question (in the case of final examinations within two weeks of the release of the examination schedule). In extenuating circumstances this deadline may be extended. If the dates are not known well in advance because they are linked to other conditions, requests should be submitted as soon as possible in advance of the required observance. Given that timely requests will prevent difficulties with arranging constructive accommodations, students are strongly encouraged to notify instructors of an observance accommodation issue within the first two weeks of classes. To facilitate timely requests and decision making, the University will take all practical steps to ensure that students and instructors are aware of the policy and related observance issues.

7. All policies can be found at www.ryerson.ca/acadcouncil

Students are expected to be familiar with all University and School of Nursing policies concerning academic performance (e.g. academic misconduct, submission of late assignments, etc.) and academic integrity. Please refer to the Post Diploma Degree Nursing Program Student Handbook and to the Ryerson University Calendar for detailed information regarding academic policies and integrity.

Professionalism in our Learning Community

Students and faculty within the school of nursing are colleagues in nursing. All members of our learning community are expected to act with professionalism and academic integrity. Honesty is the basic hallmark of academic integrity (http://www.ryerson.ca/~acadpol/policies.html). Community members are expected to credit others’ ideas in written work, make a fair contribution to group work, and behave with integrity during tests and exams. Trust, respect and fairness are values that underpin effective collaboration and life-long learning (The Center for Academic Integrity, 1999). The Ryerson, Centennial, George Brown Collaborative Nursing Degree program and The Ryerson Post RN Nursing Degree Program expect students to listen to one another’s viewpoints and to be respectful in communication. Students are required to attend all classes and labs, to be prepared, to be on time and to give adequate notice if circumstances prevent them from attending. Positive collegial professional relationships between students and faculty members contribute to excellence in both nursing education and nursing practice.

“The Recipient of Health Care is Considered the End Goal of Nursing Education” (Final Candidacy Report, 2004, p. 13).

Students with disabilities that require academic adaptations or services may discuss their needs with the course instructor and/or contact the Student Services Access Centre

285 Victoria Street, BUS-lower level and 350 Victoria Street, JOR-300

phone: (416) 979-5290 (voice), (416) 979-5274 (TDD/TTY), fax: (416) 979-5094
e-mail: accesctr@ryerson.ca  Those with learning disabilities or attention deficit disorders may contact the Access Centre Annex at 55 Gould St., lower level, also at (416) 979-5290.

**Note: Promotion Policies**

Students must achieve a grade of 'C' or above in all nursing theory and practice courses (all NCL, NUC, NUR courses) in order to be eligible to enroll in nursing courses in subsequent semesters.

Students who earn a grade of 'C-' or below in any nursing theory or practice course will be given a PROBATIONARY Standing regardless of their overall GPA.

Students will remain on PROBATION until they receive a grade of 'C' or above in all nursing courses.

Students on PROBATION who earn a grade of 'C-' or below in a nursing theory course other than the nursing theory course(s) in which they previously obtained a grade of 'C-' or below, OR who receive a first time 'C-' or below in a nursing practice course, will be given a REQUIRED TO WITHDRAW status.

Students who receive a second grade of 'C-' or below in the same nursing theory course (either a repeated or subsequent practice course) will result in a PERMANENT PROGRAM WITHDRAWAL Standing. This variation will be enacted even when the student has taken less than three courses and has not acquired a cumulative grade point average.

At any point during the academic year, the School of Nursing reserves the right to terminate a student's experience in a nursing practice setting when patterns of behaviour place self, clients or others at risk. This will result in the student receiving an 'F' grade for the course. In this circumstance, students shall have established rights of appeal; however, they cannot remain in the course while the appeal is underway. The appeal will be conducted promptly in order to protect students' rights.

The student may be assigned PERMANENT PROGRAM WITHDRAWAL from the Nursing program for reasons of unprofessional behaviour or professional misconduct.

All nursing theory courses must be completed within five years of the prerequisite professional course. (For example, no more than five years can elapse between completion of Year 1 professional courses and enrollment in Year 2 professional courses.)