HTH SCI 2S03: Introduction to Statistics for Nursing
McMaster University
Fall 2021

COURSE DESCRIPTION

This course introduces basic parametric and non-parametric statistical methods, including their application to the analysis of data relevant to nursing and health-related research questions. Specific topics addressed in the course are descriptive statistics, normal distribution, point and interval estimation, hypothesis testing, comparison of two population means, one-way Analysis of variance (ANOVA) and post-hoc tests, correlation and linear regression, non-parametric tests, and impact measures (e.g., incidence, prevalence, risk indices). Computer analysis of data using Excel/SPSS and interpretation of the statistical results will also be an integral component of the course.

Learning Outcomes

By the end of the course, students will appreciate the role of statistical analysis in quantitative research and its utility in the analysis of health-related data. Students will develop an understanding of descriptive and inferential statistics,and have the ability to apply this knowledge to interpret the statistical analysis and results sections of scientific papers. Students will also be able to apply their knowledge to the analyses of selected datasets using a statistical software program.

Course Format

The course format is a weekly **2-hour Virtual lecture** and a **1-hour Virtual tutorial**.

Mohawk Site: Lecture on Thursdays,8:30am to 10:20am; Tutorial on Thursdays, 10:30am-11:20am, 11:30-12:20pm,

Conestoga Site: Lecture on Wednesdays 1:00pm to 2:50pm: Tutorial on Wednesdays, either 3:00pm to 3:50pm or 4pm to 4:50pm

The course will include:

a) **Virtual Lectures**: There will be one 2-hour virtual lecture per week. Lectures will be delivered using the Top Hat platform (see below) and be presented according to the class schedule. Lectures will present the statistical concepts and work through sample questions. Within Top Hat, the chat feature will allow students to ask questions during the lecture, and the white board feature will allow the instructor to use more detailed drawings/explanations to illustrate concepts and address student questions.
b) **Virtual Tutorials**: There will be one 1-hour virtual tutorial per week. Tutorials will be delivered using the Top Hat platform. Each week, the tutor will work through the answers to the questions in the tutorial or graded assignment that is due the same day (prior to the tutorial). **The answers to the tutorial/graded assignments will not be recorded or made available outside the tutorial session.** Students are also encouraged to bring any questions they have about the course material to the weekly tutorials.

Learning Resources

Norman, G. & Streiner, D. (2014). *Biostatistics: The Bare Essentials* (4TH Ed.). People's Medical Publishing House, Shelton, Connecticut, USA.

Additional Resources:

Robert A. Donnelly Jr., PhD. The Complete Idiot's Guide to Statistics, 2nd Edition Paperback.

Useful website: http://www.ats.ucla.edu/stat/spss/

Other Requirements
A McMaster approved scientific calculator (Casio fx-991 is one!) with statistical functionality will be required for the final exam.

Evaluation Measures

The course will be evaluated based on the following measures:

1. Lecture participation (3%)
2. Tutorial assignments (5%)
3. Graded assignments (20%)
4. Midterm (32%)
5. Final (40%)

The instructor reserves the right to modify elements of the course and will notify students accordingly either in class or on Avenue to Learn (McMaster Undergraduate Course Management Policy, 2018).

There is no extra credit in HTHSCI 2S03. Final grades will not be curved, and there are no extra credit assignments. Issues related to grades posted in A2L must be reported to the course instructor before the final exam is written.

Lecture participation (Top Hat questions) (3%)

- A grade of 3% will be awarded to students who respond to **at least 80%** of the Top Hat questions posed during the lectures. The grade will be based on responses to the **total** number of lecture questions posed during the semester. The grade will *not* be based on the correctness of the response. **A grade of 0% will be awarded to students who respond to less than 80% of the questions.**
- Students must contact their instructor **within 7 days of the lecture** with any concerns about the Top Hat record for the lecture**. If the student has not contacted the instructor within this 7-day period, the Top Hat record will be used in calculating the lecture participation grade.**

- Students must attend the lectures to answer the Top Hat questions.
- **Please do <u>not</u> complete MSAFs or other forms for relief from missed academic work for missed participation in Top Hat questions.** Requiring only 80% of the questions to be answered to obtain the 3% grade allows you to miss some questions and yet obtain this grade**.**
- **It is the student's responsibility to register with Top Hat prior to coming to the <u>first class</u>**. The instructions for registering with Top Hat are provided below in the section called: **Top Hat Registration and Information**

Tutorial assignments (5%)

- Eight (8) tutorial assignments will be distributed to students during the term. Each assignment will consist of approximately 4-6 questions based on content from the lectures and readings.
- Completed assignments will be due in Dropbox at the **beginning** of each tutorial.
- Answers to assignment questions will be presented during the tutorial; hard copies of the answers will *not* be handed out in the tutorial or posted in Avenue to Learn.
- A grade of 5% will be awarded to students who complete and submit on time to Dropbox 6 of the 8 tutorial assignments. ***Students must attempt to answer all questions on a tutorial assignment and provide support for their answers in order to receive credit for the submission****.* Submissions of less than 6 completed assignments will be awarded a grade of 0%. Submitted assignments will be reviewed to confirm that the student attempted to answer the assignment questions, but the accuracy of the answer will not be assessed.

Graded assignments (20%)

- Two (2) assignments will be graded during the term, each worth 10% (total 20%). These assignments will be reviewed for the accuracy of the answers and comments will be provided as needed to facilitate student learning.
- The assignments are due at the **beginning** of the tutorial on the day they are due (see the course schedule for due dates).
- **All electronic submissions will not be graded unless they are submitted <u>as one document</u>**.

Midterm Examination (32%)

- The midterm exam will be comprised of both multiple choice and short answer questions.
- The midterm exam will be 1 hour and 50 minutes long and administered at the beginning of the lecture (see the course schedule for midterm date).

Final Examination (40%)

- The final exam will be held during the exam period, and is scheduled by the registrar.
- The primary purpose of the final exam is to assess your **understanding** of the statistical concepts and principles covered in the course and your **ability to apply** these concepts to clinical-related questions and the interpretation of research results.
- The structure of the final examination will be similar to the midterm exam.
- **The best way to prepare yourself for the final exam is to build your knowledge and competence throughout the term by keeping up on the weekly assigned readings, attending lectures and tutorials, and ensuring that you understand new concepts as they are presented.**

Online Proctoring

This course may use online proctoring software for the midterm and final exams. This software may require students to turn on their video camera, present identification, monitor and record their computer activities, and/or lock/restrict their browser or other applications/software during the exams. This software may be required to be installed before the exam begins.

Top Hat Registration and Information

We will be using **Top Hat Pro** (www.tophat.com) for class participation. You will be able to submit answers to in-class questions using Apple or Android smartphones and tablets, laptops, or through text message. For instructions on how to create a Top Hat account and enrol in our Top Hat Pro course, please refer to the invitation sent to your school email address or consult Top Hat's Getting Started Guide (https://bit.ly/31TGMlw).

If you already have a Top Hat account, log in to the account and go to our course. If you are new to Top Hat, go to https://app.tophat.com/register/student and search for our course using the join code.

Top Hat Pro requires a paid subscription. A full breakdown of all available subscription options can be found here: www.tophat.com/pricing.

Slate

Slate is a free community platform that allows you to remotely communicate with everyone across the university, keeping the campus connected.

How to join Slate:
Before proceeding, make sure that you have created a Top Hat account and enrolled in our Top Hat course using the steps linked above.

- Step 1: Go to https://login.tophatblue.com/, click "Login in with Top Hat," and input your Top Hat account credentials
- Step 2: Check your school email for a message from Slate to verify your email address
- Step 3: Once directed back to Slate, input your real name in the username field when prompted
- Step 4: Locate our course channel in the left-side menu

You will be automatically added to our course channel upon entry to Slate.

Full details on how to use Slate can be found here: https://support.tophat.com/s/article/Student-Slate.

Should you require assistance with Top Hat or Slate at any time please contact their Support Team directly by way of email (support@tophat.com), the in-app support button, or by calling 1-888-663-5491. Specific user information may be required by their technical support team when troubleshooting issues.

University and BScN Program Policies and Procedures

The University has defined its expectations of students in both the academic and non-academic life of the University community. Policies that govern these practices can be found on the Undergraduate Academic Calendar or on the University website http://www.mcmaster.ca/policy. As policies are reviewed and revised on a regular basis, students are responsible for checking the Policies, Procedures and Guidelines section of the University website for the most up-to-date information (adapted from the Undergraduate Calendar, 2021-22).

Conduct Expectations

As a McMaster student, you have the right to experience, and the responsibility to demonstrate, respectful and dignified interactions within all of our living, learning and working communities. These expectations are described in the Code of Student Rights & Responsibilities (the "Code"). All students share the responsibility of maintaining a positive environment for the academic and personal growth of all McMaster community members, **whether in person or online**.

It is essential that students be mindful of their interactions online, as the Code remains in effect in virtual learning environments. The Code applies to any interactions that adversely affect, disrupt, or interfere with reasonable participation in University activities. Student disruptions or behaviours that interfere with university functions on online platforms (e.g. use of Avenue 2 Learn, WebEx or Zoom for delivery), will be taken very seriously and will be investigated. Outcomes may include restriction or removal of the involved students' access to these platforms.

Copyright and Recording

Students are advised that lectures, demonstrations, performances, and any other course material provided by an instructor include copyright protected works. The Copyright Act and copyright law protect every original literary, dramatic, musical and artistic work, **including lectures** by University instructors.

The recording of lectures, tutorials, or other methods of instruction may occur during a course. Recording may be done by either the instructor for the purpose of authorized distribution, or by a student for the purpose of personal study. Students should be aware that their voice and/or image may be recorded by others during the class. Please speak with the instructor if this is a concern for you.

Extreme Circumstances

The University reserves the right to change the dates and deadlines for any or all courses in extreme circumstances (e.g., severe weather, labour disruptions, etc.). Changes will be communicated through regular McMaster communication channels, such as McMaster Daily News, A2L and/or McMaster email.

Students in the BScN program must also refer to program specific policies and procedures, which are

found in the Undergraduate Nursing Education Program Handbook. This Handbook is located in A2L in the student resource section of the course. Ensure you are familiar with this document, including the following important policies:

- Attendance Expectations, Policies and Procedures
- Academic Accommodation of Students with Disabilities Policy
- Academic Integrity Policy
- Discrimination, Harassment & Sexual Harassment: Prevention & Response
- Faculty of Health Science Professional Behaviour Code of Conduct for Learners
- Code of Student Rights and Responsibilities
- Student Appeal Procedures
- McMaster University Grading Scale
- BScN Program Viewing Final Exams Policy
- Electronic Communication Policy
- Professional Appearance Policy (for Professional Practice courses)
- Turnitin.com
- Request for Relief for Missed Academic Work (MSAF)