



QUANTITATIVE METHODS & HOSPITAL STATISTICS

Health Services Management

Course Code: STAT1013	Co-Requisites: Please see Course Related Information	Pre-Requisites: MATH1112
Applicable Program(s): C139 - Health Information Management	Core/Elective: Core	
Prepared by:	Taras Gula, faculty	
Approved by:	Stevan Ciric, Chair	
Approval Date:	Wednesday, January 5, 2022	
Approved for Academic Year:	2021-2022	
Contact Hours:	42.00	
Credit Hours:	3.00	

Course Description

This is an introductory statistics course that aims to develop statistical literacy and thinking. Students will be introduced to univariate and bivariate statistical methods using SPSS throughout. Conceptual understanding and data analysis techniques in a variety of scenarios will be stressed. Inferential topics will include only confidence intervals for single means and proportions.

Essential Employability Skills

This course contributes to your program by helping you achieve the following Essential Employability Skills:

- EES 1 **COMMUNICATION:** Communicate clearly, concisely and correctly in the written, spoken and visual form that fulfills the purpose and meets the needs of the audience. (T, P, E,)
- EES 2 **COMMUNICATION:** Respond to written, spoken or visual messages in a manner that ensures effective communication. (P, E,)
- EES 3 **NUMERACY:** Execute mathematical operations accurately. (T, P, E,)
- EES 4 **CRITICAL THINKING & PROBLEM SOLVING:** Apply a systematic approach to solve problems. (T, P, E,)
- EES 5 **CRITICAL THINKING & PROBLEM SOLVING:** Use a variety of thinking skills to anticipate and solve problems. (T, P,)
- EES 6 **INFORMATION MANAGEMENT:** Analyze, evaluate and apply relevant information from a variety of sources. (T, P, E,)

- EES 7 INFORMATION MANAGEMENT: Locate, select, organize and document information using appropriate technology and information systems. (T, P, E,)
- EES 8 INTERPERSONAL: Show respect for diverse opinions, values, belief systems and contributions of others. (P,)
- EES 9 INTERPERSONAL: Interact with others in groups or teams in ways that contribute to effective working relationships and the achievement of goals. (P,)
- EES 10 PERSONAL: Manage the use of time and other resources to complete projects. (T, P, E,)
- EES 11 PERSONAL: Take responsibility for one's own actions, decisions and consequences. (P,)

Note: "T" means elements of the skill are taught; "P" means elements of the skill are practiced; "E" means elements of the skill are evaluated; "C" means the skill culminates.

Course Learning Outcomes

When you have earned credit for this course, you will have demonstrated the ability to:

- CLO 1 CLO1 - Use statistical thinking tools {data types: categorical (nominal, ordinal) and measurement (discrete/continuous), independent and dependent variables, inferential reasoning and others} to as well as knowledge of the products of computation: {measures of position, central tendency, dispersion, distribution and frequency, confidence intervals for single mean and proportion} to quantify (abstract) concrete problems in health research.
- CLO 2 CLO2 - Enter data and coax SPSS (or other software) to produce charts/graphs appropriate for the data types presented in research scenarios.
- CLO 3 CLO3 - Think about and with the normal distribution. Z-score, areas under the curve, placing raw scores appropriately and using the model to think about distributions of data and solve concrete problems.
- CLO 4 CLO4 - Calculate (or get a machine to calculate) and interpret calculations of practical significance (measures of effect) in bivariate analysis: including Pearson's r , correlation coefficient, ratio of rates (Relative Risk) and comparison of means/medians.
- CLO 5 CLO5 - Design (define and abstract) then carry out (calculate and interpret) a non-inferential simulated study with two variables and distinguish between practically significant and non-significant results.
- CLO 6 CLO6 - Read and interpret a straightforward univariate/bivariate non journal research article.

Delivery Methods/Learning Activities

The instructional methods of this course consist of active learning, along with occasional dynamic lectures. Activities will focus on developing competencies with statistical concepts before using SPSS to support building solutions to problems, and will include: occasional group work, many in-class exercises, and one longer mini research study. 60 marks out of 100 will come from mastery based grading approach.

Learning Resources

Readings and exercise booklets, SPSS instructions and assignments will be distributed and posted to:
www.stataras.com

Practice with data types and other abstraction/computational skills available through www.statcat.ca and the HNP webapp

Student version of SPSS for practice and assignment completion at home is available from appsanywhere through the college but students can use CODAP at home if that is what they prefer.

Course Related Information

PREREQUISITES: Math 1112

George Brown Related Information

ACKNOWLEDGEMENT OF THE TRADITIONAL LAND

We would like to acknowledge that George Brown College is located on the traditional territory of the Mississaugas of the Credit First Nation and the land of other Indigenous Peoples who have lived here over time.

PROGRAM LEARNING OUTCOMES

College programs are designed to deliver program learning outcomes that relate to the unique content of a particular area of study. To review the specific program learning outcomes for your program, please go to your program page on the George Brown College website at <https://www.georgebrown.ca/>

IMPORTANT PROGRAM INFORMATION

Students are advised to consult program coordinators regarding specific requirements for successfully completing their program, including adding/dropping courses and other issues that might disrupt their course of study.

RETENTION OF COURSE OUTLINES

Students are expected to retain their course outlines to support learning in the course and for future use in applications for transfer of credit to other educational institutions.

COLLEGE POLICIES

It is essential that students review all college policies, including Academic Policies available at <https://www.georgebrown.ca/policies>.

DIGITAL LEARNING REQUIREMENTS

Students are required to have access to a computer and to the internet. There may also be additional technology-related requirements to participate in a course that are not included in the course materials fee, such as headphones, webcams, specialized software, etc. Details on these requirements can be found in the course outline

for each course.

The Library Learning Commons (LLC) has a limited number of devices including laptops and portable WIFI devices to support students; however, the LLC cannot guarantee access to a device for all students.

ACCESSIBLE LEARNING SERVICES FOR STUDENTS

Accessible Learning Services facilitates academic support and services for George Brown College students with physical, sensory, learning, medical or mental health disabilities. Delivered in collaboration with academic departments and other service areas, these services are available to students in all programs at all campuses.

George Brown College is committed to upholding a student's right to individualized and timely accommodation that promotes dignity, independence, autonomy, equity, and inclusion for the student. In addition to our current supports, we are working to eliminate barriers by increasing access to alternate formats, planning accessible buildings and classrooms, enhancing employee training, and adopting inclusive practices in placement and on campus.

Only those involved in a student's accommodation plan shall be alerted to their registration with Accessible Learning Services, and a student's registration with Accessible Learning Services will not be identified on the student's official college transcript and/or graduation documentation. For more information, please visit the Accessible Learning Services website at <http://www.georgebrown.ca/accessible-learning-services/> or call 416-415-5000 ext. 2622 or email letstalk@georgebrown.ca

EQUITY STATEMENT

George Brown College values the diversity of our students, employees, and community partners, and is committed to providing a learning environment where all people are safe and respected. Comments, behaviours, or interactions that are inconsistent with our values may be a violation of the following college policies: Sexual Assault and Sexual Violence, Human Rights Discrimination and Harassment, and the Prevention of Workplace Violence and Harassment. These types of actions or comments are not acceptable and will not be tolerated. The commitment and cooperation of all students and employees is required to maintain a welcoming environment in which to learn and work.

Support and information are available through a Human Rights Advisor at diversity@georgebrown.ca or the Sexual Violence Response Advisor at svra@georgebrown.ca

For information on the relevant policies visit <https://www.georgebrown.ca/diversity/>

TEXT-MATCHING DETECTION SOFTWARE

Text-matching detection software assists faculty and students in preventing and detecting plagiarism. Faculty may use such software to check the originality of the academic work students submit in a course by comparing submitted assignments to those contained in publicly accessible internet sites, and academic journals, as well as databases of submitted papers and other sources. Faculty may not submit any student work that contains personally identifiable information through a text matching/anti-plagiarism tool or require students to do so.

Automated text matching software will be made available to all academic staff and students to promote academic

integrity and appropriate documentation of sources. Professors may choose to use the college-approved automated text matching detection software in their courses. Students are permitted to submit draft assignments prior to the due date, and to receive the screening report that is also available to professors.

Student Evaluation System

Below is a list of evaluation methods included in this course along with the course learning outcomes (CLO) and essential employability skills (EES) assessed by each. In some cases, program learning outcomes (PLO) assessed may also be indicated.

Online quizz(es) (10%)

Mathematics Review (5 core) Characteristics of One Measurement variable (3 core) Histogram vs Box Plot (2 core)

Validates Outcomes: CLO 4, EES 3

Assignment 1 (2%)

Survey data collection and entry assignment (core)

Validates Outcomes: CLO 2, EES 6

Assignment 2 (5%)

Data Types and SPSS output (core)

Validates Outcomes: CLO 2, EES 7

Test (10%)

Demonstrate ability to think about and think with the normal distribution. (core)

Validates Outcomes: CLO 3, EES 3, EES 7

Test 2 (13%)

Calculate and interpret inferential statistics for one variable. (non-core)

Validates Outcomes: CLO 2, CLO 4, EES 3, EES 4, EES 7

Assignments and Tests (10%)

Assessments of concepts and calculations in analysis of 2 variables (core)

Final Exam (20%)

Test on ability to conduct data analysis for scenarios with 2 variables. (10 core, 10 non-core)

Validates Outcomes: CLO 1, CLO 2, CLO 3, CLO 4, CLO 6, EES 1, EES 2, EES 3, EES 4, EES 6

Research Project(s) (30%)

Mini Research Project: create your own practically significant and non-significant data sets and analyse them. (3 stages)

Validates Outcomes: CLO 1, CLO 2, CLO 4, CLO 5, EES 1, EES 3, EES 4, EES 6, EES 10

Prior Learning Assessment and Recognition

Prior learning assessment and recognition (PLAR) is a process that gives students the opportunity to obtain academic credit for one or more courses in a certificate, diploma or degree based on demonstrated prior learning acquired through life experiences before enrollment in a program. More information regarding PLAR can be found on the GBC website at: <http://www.georgebrown.ca/plar/>

- This course is PLAR eligible, please see Program Coordinator/Chair for more information.

Grading System

The passing grade for this course is 60% / "C-"

Final Grade	Percentage	Weight
A+	90-100	4.0
A	86-89	4.0
A-	80-85	3.7
B+	77-79	3.3
B	73-76	3.0
B-	70-72	2.7
C+	67-69	2.3
C	63-66	2.0
C-	60-62	1.7
F	Below 60	0.0

Refer to the Evaluation System on this outline for information on how marks are distributed. More detailed information on assessments may also be found in your Course Section document.

As per Office of the Registrar Policies:

"A" Range = GPA 4.0-Consistently exceeds (course) requirements; shows evidence of being well-organized; shows original and creative thinking and a superior grasp of subject matter.

"B" Range = GPA 3.0-Shows consistent performance and evidence of being well-organized, shows elements of original and creative thinking; has a strong grasp of subject matter

"C" Range = GPA 2.0-Applies the subject matter appropriately; comprehends the subject matter."

"F" Range = GPA 0.0-The student fails to apply and communicate an understanding of the subject matter.

Additional information regarding grading for this course may also be found in the "Course Related Information" section of this course outline.

Legend

Terms

- ALO: Aboriginal Learning Outcome
- Apprenticeship LO: Apprenticeship Learning Outcome
- CLO: Course Learning Outcome
- DPLO: Degree Program Learning Outcome
- EES: Essential Employability Skill
- EOP: Element of Performance
- GELO: General Education Learning Outcome
- LO: Learning Outcome
- APO: Additional Program Outcome
- PLA: Prior Learning Assessment
- PLAR: Prior Learning Assessment and Recognition
- PLO: Program Learning Outcome