

Non-Major Modification Program Changes

1. Program: Health Studies

2. Degree Designation:

Honours Bachelor of Health Studies

Specialized Honours Bachelor of Health Studies (Health Policy, Management & Digital Health)

3. Type of Modification: Changes to degree requirements

4. Effective Date: Fall 2023

5. State what the changes are (Example: increase / decrease to the number of major credits)

Students require 6.00 credits in statistics for the BHS Honours and BHS Specialized Honours degrees. Currently we offer a 6.00 credit course HH/HLST 2300 6.00. We are proposing two 3.00 credit courses that can be offered instead of the 6.00 credit course. The new 3.00 credit courses (HH/HLST 2301 3.00 and HH/HLST 2302 3.00) together will cover the same course learning outcomes as the original 6.00 credit course.

6. Provide the rationale for the proposed changes that is rooted in the program learning outcomes.

Students who do not successfully pass the 6.00 credit course must wait an additional year to enroll in HLST 2300 6.00 again. Sometimes this delays the degree progress for students by one year. By offering HLST 2301 3.00 and HLST 2302 3.00 students will have the opportunity to “catch up” in the next semester rather than waiting until the next fall to re-take a statistics course. For students who do not pass HLST 2301 3.00 in Fall, they may have the opportunity to take approved substitutes in PSYC or KINE in the Winter and Summer semesters. For students who pass HLST 2301 3.00 in Fall, but do not pass HLST 2302 3.00 in Winter, they may have the opportunity to take an approved substitute in Summer. Alternatively, if the proposed Racialized Health and Disability Justice (RHDJ) undergraduate program is approved, we may consider offering either HLST 2301 3.00 + HLST 2302 3.00, or HLST 2300 6.00 in Summer semester in addition to offering it in F/W and students would have the option of taking the course at that time. In all of these scenarios we have provided students with alternatives to maintain their degree progression.

7. Provide an updated mapping of the program requirements to the program learning outcomes to illustrate how the proposed requirements will support the achievement of program learning objectives.

~~Not applicable.~~

The overall course learning outcomes of the two courses (HLST 2301 3.00 and HLST 2302 3.00) align with the existing course HLST 2300 6.00, thus there is no impact on our ability to achieve our program learning outcomes:

HLST 2300 6.00	HLST 2301 3.00	HLST 2302 3.00
<ol style="list-style-type: none"> 1. Differentiate between experimental and observational study designs 2. Describe data using descriptive statistics and graphs 3. Explain the role of probability theory in conducting statistical inference analyses (probability distributions, standard normal distribution, Central Limit Theorem) 4. Conduct statistical inference analyses (null hypothesis testing and confidence interval estimation) 5. Analyze risk ratios and odds ratios 6. Conduct statistical analyses to determine whether there are differences between groups (parametric and non-parametric, independent and repeated measures) 7. Describe relationships between categorical, ordinal and continuous variables (chi-square, Pearson's correlation and Spearman's correlation) 8. Predict outcomes (continuous and binary) from scale and 	<ol style="list-style-type: none"> 1. Differentiate between experimental and observational study designs 2. Describe data using descriptive statistics and graphs 3. Explain the role of probability theory in conducting statistical inference analyses (probability distributions, standard normal distribution, Central Limit Theorem) 4. Conduct statistical inference analyses (null hypothesis testing and confidence interval estimation) 5. Use a statistical software package to carry out statistical analyses and generate statistical outputs in the forms of charts and graphs. 6. Plan timelines for effective personal learning 	<ol style="list-style-type: none"> 1. Analyze risk ratios and odds ratios 2. Conduct statistical analyses to determine whether there are differences between groups (parametric and non-parametric, independent and repeated measures) 3. Describe relationships between categorical, ordinal and continuous variables (chi-square, Pearson's correlation and Spearman's correlation) 4. Predict outcomes (continuous and binary) from scale and categorical predictor variables (linear regression and binary logistic regression) 5. Use a statistical software package to carry out statistical analyses and generate statistical outputs in the forms of charts and graphs. 6. Plan timelines for effective personal learning

<p>categorical predictor variables (linear regression and binary logistic regression)</p> <p>9. Use a statistical software package to carry out statistical analyses and generate statistical outputs in the forms of charts and graphs.</p> <p>10. Plan timelines for effective personal learning</p>		
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8. If relevant, summarize the consultation undertaken with relevant academic units, including commentary on the impact of the proposed changes on other programs. Provide individual statements from the relevant program(s) confirming consultation and their support.

This does not impact other academic units. This change has been approved by the SHPM Curriculum Committee.

9. Describe any resource implications and how they are being addressed (e.g., through a reallocation of existing resources). If new/additional resources are required, provide a statement from the relevant Dean(s)/Principal confirming resources will be in place to implement the changes.

No anticipated changes to resourcing required. These two 3.00 credit courses will be offered instead of the 6.00 credit course.

10. Provide a summary of how students currently enrolled in the program will be accommodated.

Students will have the option of either completing the two new 3.00 credit courses to satisfy their degree requirements, or the existing HLST 2300 6.00 course, depending on which combination of course(s) have been scheduled. As noted in item #6 above, scheduling either the two 3.00 credits or the one 6.00 credit course may be dependent on available resources; however if the RHDJ is approved, we see that we could offer 6.00 credits in statistics twice per year and at that time we may offer both options.

11. Provide as an appendix a side-by-side comparison of the existing and proposed program requirements as they will appear in the Undergraduate or Graduate Calendar.

Appendix 1 – Changes to Calendar Copy

Existing Program Requirements	Proposed Program Requirements (Additions are <u>bold, underlined, and yellow highlighted</u>)
<p>Health Studies (Honours BHS Program): 120 Credits</p> <p>Residency requirement: a minimum of 30 course credits and at least half (50 per cent) of the course credits required in each undergraduate degree program major/minor must be taken at York University.</p> <p>Graduation requirement: all graduates must complete a total of at least 120 credits with a minimum overall cumulative grade point average of 5.00 (C+).</p> <p>General education: a minimum of 18 credits as follows:</p> <ul style="list-style-type: none"> • six credits at the 1000 level in approved Faculty of Health general education or humanities categories approved by the Faculty of Liberal Arts & Professional Studies • six credits at the 1000 level in approved Faculty of Health general education or social science categories approved by the Faculty of Liberal Arts & Professional Studies • six credits at the 1000 level in natural science (NATS) offered by the Faculty of Science <p>Note 1: It is strongly recommended that students complete the general education requirements above within their first 54 credits.</p> <p>Note 2: Students may complete a maximum of 30 credits in general education; any additional credits not being used to fulfil</p>	<p>Health Studies (Honours BHS Program): 120 Credits</p> <p>Residency requirement: a minimum of 30 course credits and at least half (50 per cent) of the course credits required in each undergraduate degree program major/minor must be taken at York University.</p> <p>Graduation requirement: all graduates must complete a total of at least 120 credits with a minimum overall cumulative grade point average of 5.00 (C+).</p> <p>General education: a minimum of 18 credits as follows:</p> <ul style="list-style-type: none"> • six credits at the 1000 level in approved Faculty of Health general education or humanities categories approved by the Faculty of Liberal Arts & Professional Studies • six credits at the 1000 level in approved Faculty of Health general education or social science categories approved by the Faculty of Liberal Arts & Professional Studies • six credits at the 1000 level in natural science (NATS) offered by the Faculty of Science <p>Note 1: It is strongly recommended that students complete the general education requirements above within their first 54 credits.</p> <p>Note 2: Students may complete a maximum of 30 credits in general education; any additional credits not being used to fulfil</p>

general education may count toward electives.

Note 3: General education requirements are satisfied by taking natural science courses, approved humanities or social science categories courses and Faculty of Health general education courses. For further information please visit yorku.ca/health/academic-resources/general-education-requirements/.

Note 4: Students have the option to take specified Faculty of Health courses to fulfill their social sciences general education requirements. Courses offered by the Faculty of Health that are used to fulfill the social sciences general education credits may not also count as credits towards the major. For a list of courses, please visit: yorku.ca/health/general-education-approvedhhcourses/

Major credits: students must complete a minimum of 42 credits in the major as follows:

- HH/HLST 1010 3.00 and HH/HLST 1011 3.00
- HH/HLST 2010 3.00
- HH/HLST 2020 3.00
- HH/HLST 2030 3.00
- HH/HLST 2040 3.00
- HH/HLST 2300 6.00
- HH/HLST 3120 3.00
- HH/HLST 3230 3.00
- HH/HLST 3341 3.00
- HH/HLST 4010 3.00
- HH/HLST 4200 6.00

Upper-level credits: a minimum of 36 credits must be taken at the 3000 level or 4000 level, including at least 18 credits at the 4000 level.

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- HH/HLST 2030 3.00 or HH/HLST 2301 3.00 and HH/HLST 2302 3.00
- HH/HLST 2040 3.00
- HH/HLST 2300 6.00
- HH/HLST 3120 3.00
- HH/HLST 3230 3.00
- HH/HLST 3341 3.00
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Electives: additional credits as required for an overall total of at least 120 credits. Elective credits may be used to fulfil upper-level credits.

Honours Double Major BHS Program

The Honours BHS program described above may be pursued jointly with Honours Double Major bachelor's degree programs in the Faculty of Environmental and Urban Change, the Faculty of Health, the Faculty of Liberal Arts & Professional Studies, the Faculty of Science or the Lassonde School of Engineering. For further details on requirements, contact the respective Faculty.

Honours Major/Minor BHS Program

The Honours BHS program described above may be pursued jointly with any Honours Minor bachelor's degree program in the Faculty of Environmental and Urban Change, the Faculty of Health, the Faculty of Liberal Arts & Professional Studies, the Faculty of Science or the Lassonde School of Engineering as listed in the Faculty of Health *Rules and Regulations* section of the *Faculty Rules*.

Health Policy, Management & Digital Health (Specialized Honours BHS Program): 120 Credits

Residency requirement: a minimum of 30 course credits and at least half (50 per cent) of the course credits required in each undergraduate degree program major/minor must be taken at York University.

Graduation requirement: all graduates must complete a total of at least 120 credits with a minimum overall cumulative grade point average of 5.00 (C+).

Electives: additional credits as required for an overall total of at least 120 credits. Elective credits may be used to fulfil upper-level credits.

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General education: a minimum of 18 credits as follows:

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Note 1: It is strongly recommended that students complete the general education requirements above within their first 54 credits.

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visit: yorku.ca/health/general-education-approvedhhcourses/

Major credits:

Students must complete a minimum of 72 credits in health policy, management and digital health.

Core Courses (42 credits):

- HH/HLST 1010 3.00 and HH/HLST 1011 3.00
- HH/HLST 2010 3.00
- HH/HLST 2020 3.00
- HH/HLST 2030 3.00
- HH/HLST 2040 3.00
- HH/HLST 2300 6.00
- HH/HLST 3120 3.00
- HH/HLST 3230 3.00
- HH/HLST 3341 3.00
- HH/HLST 4010 3.00
- HH/HLST 4200 6.00

At least 30 additional credits in health studies (HLST) including 15 credits at the 3000 level and 15 credits at the 4000 level.

Upper-level credits: a minimum of 36 credits must be taken at the 3000 level or 4000 level, including at least 18 credits at the 4000 level.

Electives: additional credits as required for an overall total of at least 120 credits.

Elective credits may be used to fulfil upper-level credits.

PROGRAM COURSE	COURSE SUBSTITUTES
HH/HLST 2010 3.00	HH/HLST 3510 3.00
HH/HLST 3320 3.00	AP/ITEC 3220 3.00
HH/HLST 4300 3.00	HH/NURS 4200 3.00
HH/HLST 4310 3.00	AP/ITEC 3010 3.00
HH/HLST 4330 3.00	AP/ADMS 4300 3.00

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PROGRAM COURSE	COURSE SUBSTITUTES
HH/HLST 2010 3.00	HH/HLST 3510 3.00
HH/HLST 3320 3.00	AP/ITEC 3220 3.00
HH/HLST 4300 3.00	HH/NURS 4200 3.00
HH/HLST 4310 3.00	AP/ITEC 3010 3.00
HH/HLST 4330 3.00	AP/ADMS 4300 3.00

School/Department: SHPM

Course Rubric and Number: HLST 2301

Credit Weight: 3.00 (e.g. 3.00, 6.00) **Effective Session:** Fall 2023 (e.g. Fall 2021, F/W 2021-22)

Course Title: *The official name of the course as it will appear in the Undergraduate Calendar.*

Statistical Methods in Health Studies I

Short Title: *Maximum 40 characters, including punctuation and spaces. The short title appears on any documents where space is limited (transcripts and calendar copy).*

Statistical Methods in Health Studies I

Brief Course Description: *For editorial consistency, verbs should be in the present tense and begin the description; e.g., "Analyzes the nature and extent of..."*

This is the official description of the course as it will appear in the Undergraduate Calendar. The course description should be carefully written to convey what the course is about. If applicable, include information regarding the language of instruction if other than English.

Introduces fundamental concepts and application of descriptive statistics. Probability and inferential statistics, including hypothesis testing with the normal- and t-distributions are presented.

List course(s) where applicable:

Prerequisites:	HH/HLST 1010 3.00 and HH/HLST 1011 3.00; 4U Math or HLST 1111 3.00 or one 4U mathematics course or equivalent.
Corequisites:	
Cross-listed to:	
Course Credit Exclusions*:	HH/HLST 2300 6.00 or AP/ADMS 2300 6.00 (prior to summer 2018) or HH/KINE 2050 3.00 or HH/PSYC 2020 6.00 or HH/PSYC 2021 3.00 or HH/GH 2010 6.00
Integration**:	

*Course credit exclusion is a formal status accorded to pairs of courses that are recognized as having sufficient overlap in content to warrant specifically excluding students from obtaining credit for both.

**Integrated courses are graduate courses integrated (taught with) 4000-level undergraduate courses

Include the following information only if the course is: limited to a specific group of students; closed to a specific group of students; and if there is any additional information necessary for students to know before enrolling (notes section). If the course includes experiential education, such as whether the students will work with a community partner and/or if it will involve going off-campus, please include this in the notes section.

Open to:	Students in BHS program only
Not open to:	
Notes:	

Science Course:

Denotes courses in IHST, KINE or PSYC to count as science credit for BSc degree programs	YES	NO
		X

Section A - Course Rationale:

1. What is the rationale for creating this course (e.g., fills a gap in the curriculum, addresses a trend in the content area)?

There is an existing BHS Honours/Specialized Honours degree requirement, HLST 2300 6.00 Statistical Methods in Health Studies. We noted the following trends with HLST 2300 6.00 that impact degree progress for students in the BHS Honours and Specialized Honours degrees:

- **Issue:** Students transferring into the BHS Honours/Spec Honours programs that have 3.00 credits in Statistics have not covered sufficient statistics content to receive transfer credit for HLST 2300 6.00.
Solution: By splitting HLST 2300 6.00 into two 3.00 credit courses, this provides an option (where appropriate) for students to receive transfer credit for HLST 2301 3.00 (proposed here) and then they can complete HLST 2302 3.00 for their statistics degree requirement. Note, HLST students are often limited in their opportunities to enroll in possible 3.00 credit substitute courses in other Faculty of Health schools due to space issues.
- **Issue:** We tracked student success in HLST 2300 6.00 from 2017 to 2021. Compared to our other required HLST courses at the 2000-level, HLST 2300 6.00 had a higher proportion of students dropping the course and failing the course.

	HLST 2300 6.00	HLST 2020 3.00	HLST 2030 3.00	HLST 2040 3.00
Average % Students Drop (2017 – 2021)	27%	13%	13%	10%
Average % Students Fail (2017 – 2021)	11%	6%	3%	3%

Solution: There are a number of initiatives underway to improve student success in HLST 2300 6.00, however we also feel that offering statistics as two 3.00 credit courses will permit those students who fail the course or who drop the course the opportunity to avoid losing two semesters of progress (and avoid delaying their degree progress by one year).

Finally, having the flexibility to offer HLST 2300 6.00 as a 6.00 credit course, or as two 3.00 credit courses (HLST 2301 3.00 and HLST 2302 3.00) will provide flexibility in the annual course planning and resourcing exercise and permit SHPM to select the appropriate version of the course to respond to student needs and resource availability.

2. Describe how this new course aligns with the School/Dept and/or Faculty and/or University Academic Plans. For more information about these plans, contact your UPD, Department Chair, and/or the Associate Dean, Learning, Teaching, & Academic Programs.

Alignment with York's 2020-2025 SMA:

- Offering our 6.00 credits in Statistics as two separate 3.00-credit course is designed to improve program retention, on-time degree progress and graduation rates by offering students flexibility in statistics (a degree requirement) course enrollment options

Alignment with 2020-2025 UAP:

- 21st Century Learning: The course will be offered in a blended format, leveraging lessons learned in technology-enhanced learning over the last two years
- Knowledge for the Future: The course will teach the use of R for statistical analyses. Our community partners have indicated this is an industry expectation for students entering the workforce.
- From Access to Success: The course will offer more pathways for students to complete their 6.00 credits in statistics. Students will be able to access R for free – it is an open source free statistical software package.

Alignment with FoH Health@2020 Academic Plan:

- Promoting a High-Quality Learning Experience: Technology-enhanced learning and the incorporation of R ensures that students are engaging in course content that is directly aligned to market demand

3. How does this proposed course complement, align, or overlap with existing course offerings, particularly in terms of objectives and/or content? If overlap exists, please indicate the nature and extent of consultation which has taken place. If the course is to be cross-listed, integrated or listed as a course credit exclusion with another course, approval is required from all the relevant Faculties/Units.

This course overlaps with half of HLST 2300 6.00. This course will be a CCE for HLST 2300 6.00.

4. What is the expected enrolment in the course? If course enrollments are below 50 please explain why.

196 students per semester

Section B - Course Structure:

1. Is this course (Please select one with "X"):

	Fully online
	Fully face to face
X	Blended (i.e., one third of the face to face class time is replaced by online instruction, one third of the class time remains face to face, and the remaining third may be any combination of online and face to face delivery). More information about defining blended learning can be found in the Common Language for eLearning: http://avptl.info.yorku.ca/files/2017/03/2014-03-26-Common-Language-for-eLearning.pdf
	Other (please describe):

2. Number of contact hours (defined in terms of hours, weeks, etc.) involved. This information is particularly important to describe for blended and online courses as it indicates whether an effective length of term is being maintained.

3 hours per week x 12 weeks

3. a) If this course is offered in a blended format, what percentage of the course will be taught online? If not blended, go to # 4.

b) In absence of scheduled contact hours (face-to-face or online), please provide an indication of the estimated time students are likely to spend engaged in learning activities online required by the course.

c) In the absence of scheduled contact hours (face-to-face or online), please describe how the course design encourages student engagement and supports students in achieving the learning outcomes.

One-third of class time (1-hour tutorial) will be taught online, which may be synchronous, asynchronous, or a mixture of both; the remaining two hours are fully face to face lecture for most weeks, however some weeks may also offer online instruction dependent on the topic. The tutorial is a 1-hour scheduled contact hour.

4. Indicate the planned frequency of offering and number of sections anticipated (every year, alternate years, etc.)

This course will be offered at least once per year, usually in the Fall semester. Based on available resources, SHPM will determine if the statistics offerings will consist of either HLST 2301 3.00 + HLST 2302 3.00, or HLST 2300 6.00. For example, if available resources permit one instructor assigned for 6.00 credits, then we may offer the course as HLST 2300 6.00; however if available resources indicate that we must assign two instructors then consideration for offering the two 3.00 credit versions will occur. At this time, we do not see enrollment demand for both versions of the course being offered in the same academic year, however, should enrollment volumes increase, SHPM will schedule accordingly. For example, we are considering in future that we may begin to offer HLST 2300 6.00 in the summer semester if the new proposed Racialized Health and Disability Justice undergraduate program is approved as we anticipate that some of those students will wish to take credits in statistics.

YES	NO
X	

5. Can you staff this course using current teaching capacity?

If no, explain how this course will be resourced (e.g., additional hires proposed in hiring plan, etc.)

Not applicable

6. Please name the faculty member(s) in the school/dept who have the expertise and are willing to teach this course.

Hannah Wong
 Matthias Hoben
 Christo El Morr
 Lynda van Dreumel

7. Does the course rely on faculty from other programs to teach this course? If so, specify (proposed instructor(s) name and department and attach a letter of support from the faculty member’s home school/department UPD/Chair.

No

Section C - Course Design Information:

This section provides an opportunity to describe the course, its design, and how delivery of the course content aligns with the learning outcomes, teaching activities, and assessment methods. There is also an opportunity for describing how the course applies principles of experiential education, technology enhanced learning and universal design for learning.

- **Experiential Education** remains a top priority for York University and the Faculty of Health as it offers a range of benefits for students related to academic performance, civic engagement and employability. Note that providing and facilitating opportunities for structured, critical reflection (e.g. using iclicker/REEF polling, exit cards, journal entry) is a key component of experiential education. Course directors are invited to integrate EE into their course where possible, but it is understood that some EE activities may not be feasible in every course. Go to <https://health.yorku.ca/experiential-education/faculty/> to see definitions of course focused, community focused, and work focused EE, information on the benefits of EE for students and course directors, and other details.
- The integration of tools and strategies for **technology enhanced learning** (e.g. online learning management system like Moodle, use of polling technology such as iclicker/REEF and other in class technology e.g., see <https://student.computing.yorku.ca/technology-used-in-courses/>) may provide useful tools for encouraging in class engagement and facilitating deeper learning. For help with online and blended learning course development go to <https://its.info.yorku.ca/health/>.
- The Faculty of Health is committed to the **universal design for learning** principles, i.e., offering and ensuring a diverse array of opportunities for all learners to engage, learn, and demonstrate their knowledge. More information about Universal Design for Learning, as well as recommendations for accommodations and inclusive teaching, can be found at: http://udlguidelines.cast.org/binaries/content/assets/udlguidelines/udlg-v2-2/udlg_graphicorganizer_v2-2_numbers-no.pdf and on the Teaching Commons website. Therefore, when designing a course, be sure to consider
 - multiple means of engagement (How will diverse students access and participate in the learning & teaching activities?)
 - multiple means of representation (How will course content be presented in a variety of different ways to support different learning needs and preferences?)
 - multiple means of action & expression (What diverse ways will students be able to demonstrate their learning?)

1. Course Topics/Theories

List the key topic areas taught in this course.

- Review of Mathematical Concepts
- Variables and the Research Process
- Study Designs
- Descriptive Statistics – Describing Data with Numerical Measures
- Descriptive Statistics – Describing Data with Graphs
- Probability
- The Normal Probability Distribution
- The Central Limit Theorem
- Null Hypothesis Significance Testing
- Confidence Intervals

	YES	NO
Will the course have substantial Indigenous (Aboriginal)* content?		X
Will the course include Indigenous (Aboriginal)* identity as either a module or field of study?		X
Will the course include component(s) from Aboriginal Peoples' language, history, cultural, heritage, artefacts, or traditional knowledge?		X

If you answered Yes to at least one of the questions above, provide a summary and/or list of the Indigenous (Aboriginal)* content or components you are proposing to include in your course in the box below.

Not applicable

*The Constitution Act, 1982, section 35(2) defines Aboriginal Peoples to include all Indigenous people of Canada – Indians (Status, Non-Status or First Nations identified), Métis and Inuit people.

2. Course Teaching Objectives

Course teaching objectives are broad goals for the course.

Examples of course teaching objectives:

- Exposes students to the various methods used for investigating the structure and function of the human brain.
- Provides students the opportunity to develop and practice skills in effective communication.

List the teaching objectives for the course below:

Instill in students a sense of inquisitiveness in data.

Foster student participation in debates on healthcare reform using statistical techniques and procedures.

Provide students the opportunity to develop and practice skills in data analytics.

3. Course Student Learning Outcomes:

Learning outcomes provide a framework for assessment by stating what the learners will be able to demonstrate after completing the course. A succinct learning outcome specifies the tasks students are expected to be able to perform and the level of competence expected for the tasks. Course Learning Outcomes are observable, measurable goals for students and their learning.

Examples of course learning outcomes:

- Students will be able to correctly identify the brain's major components and gross functional areas.
- Students will be able to accurately describe the factors that impact healthy aging.
- Students will be able to critically analyze an academic journal article to determine the merits and drawbacks of the published research.

To help describe learning outcomes, consider the key questions below:

What essential knowledge, skills, and attitudes etc. should students acquire?

- How sophisticated or complex (memorization, analysis, creation, etc.) is students learning to be?

- What will students be able to do or how will they demonstrate/articulate their level of learning?
- What information is needed to be collected to verify/demonstrate students' attainment of learning outcomes?
- How informative are each of these assessment tasks to understanding the student learning process?
- Are these clearly stated and communicated to students?

More information and additional resources can be found on the [Teaching Commons website](#).

List and number the learning outcomes for the course in the section below:

1. Differentiate between experimental and observational study designs
2. Describe data using descriptive statistics and graphs
3. Explain the role of probability theory in conducting statistical inference analyses (probability distributions, standard normal distribution, Central Limit Theorem)
4. Conduct statistical inference analyses (null hypothesis testing and confidence interval estimation)
5. Use a statistical software package to carry out statistical analyses and generate statistical outputs in the forms of charts and graphs.
6. Plan timelines for effective personal learning

4. Course Teaching Strategies and Learning Activities

What teaching strategies and learning activities (including experiential education) will take place as part of this course? What will students be doing each week in class? How will these activities help support students' learning as defined by the learning outcomes.

To help identify course learning activities that will help students work toward achieving intended learning outcomes, reflect on these key questions:

- How will students receive or gain the information necessary for achieving the course intended learning outcomes?
- What experiential education activities will students engage in?
- What opportunities will or could students be provided to practice the skills they will develop?
- How and when will students engage with each other, with the instructor, and/or with course content?
- If technology-enhanced learning is incorporated into the course, what activities will the students engage in?

Examples:

(This is not an exhaustive list, but rather a summary of the strategies an instructor may use to encourage and facilitate meaningful learning throughout the course)

- In class discussions
- Lecture
- Online discussion forums (e.g. in Moodle)
- Active learning strategies (e.g. think, pair, share; structured debates)
- Wikis (contribute to and curate collaborative content)
- Experiential Education (EE)- Classroom Focused Activities (e.g. guest speakers, role playing, visual media, case studies, simulations, workshops and laboratory, course-based research, etc.)
- EE- Community Focused EE Activities (e.g. community-based learning; community-based research, community service learning)

List the teaching strategies and learning activities that will be included in this course:

- In class discussions of mainstream media and scientific literature that report on statistical information (analysis, interpretation, display)
- Lectures with examples (data, analysis and reference resources) on current events (e.g., COVID-19, social determinants of health, measures of healthcare efficiency, access, equity, timeliness, effectiveness)
- Creation of dataset to be used to generate descriptive and inferential statistics (e.g., analysis of nominal, ordinal and scale variables)

- Use of visual media (infographics) that highlight key statistical findings in a concise, visual and easy-to-share format

Section D - Course Mapping and Constructive Alignment

This section is designed to help you demonstrate the connections between your student learning outcomes, teaching and learning activities, and assessment strategies. For each teaching and learning activity, please i) identify the learning outcome it will help the students achieve and ii) if the activity will include a formal, graded assessment of student learning. For EE activities, also identify iii) how you will engage students in reflection around the activity (i.e. critically examining the experience), and iv) the type of EE strategy the activity corresponds to.

			For EE Activities Only	
Teaching and Learning Activity	Which course learning outcome/s will this activity help student achieve?	Will this activity include a formal, graded assessment of student learning? (Y/N) <i>A detailed description of assessment and evaluation strategies will be provided in the next section.</i>	How you will engage students in reflection around this activity?	Corresponding EE Strategy 1- Classroom Focused 2- Community Focused 3- Work Focused
<ul style="list-style-type: none"> - In class discussions of mainstream media and scientific literature that report on statistical information (analysis, interpretation, display) 	<i>Learning outcomes 1, 2, 5</i>	Y		
<ul style="list-style-type: none"> - Lectures with examples (data, analysis and reference resources) on current events (e.g., COVID-19, social determinants of health, measures of healthcare efficiency, access, equity, timeliness, effectiveness) 	<i>Learning outcomes 1-5</i>	Y		

- Creation of dataset to be used to generate descriptive and inferential statistics (e.g., analysis of nominal, ordinal and scale variables)	<i>Learning outcomes 2, 4-5</i>	Y		
- Use of visual media (infographics) that highlight key statistical findings in a concise, visual and easy-to-share format	<i>Learning outcomes 2 and 5</i>	Y	<i>Think-Pair-Share- In pairs, students will discuss two potential improvements to the infographic, and share responses with the class.</i>	1

1. If the course will not include any type of experiential education, please comment below on the rationale for not incorporating experiential education into the course.

Not applicable

	YES	NO
2. Will the course engage Indigenous (Aboriginal) communities (including reserves, territories, departments, or community organizations, etc) on experiential education?		X

If yes, please comment below on how you will or might engage Indigenous (Aboriginal) communities in experiential education

Not applicable

Learning/Teaching with Technology:

3. How are learning or teaching technologies incorporated into the course?

- All course content (slides, links to resources, required readings, lecture recordings) will be available on eClass
- Students will use eClass Quiz to complete weekly summative assessments
- Students will use R, an open source and free statistical analysis software, to conduct statistical analyses

4. If the course does not include any type of technology enhanced learning, please comment below on the rationale for not incorporating learning or teaching technologies in the course.

Not applicable

5. If the proposed course employs technology-enhanced forms of delivery (e.g., replacing in-class time with online learning activities), please identify how the integrity of the learning evaluation will be maintained (e.g., using online quizzes that randomly selects questions from a test-bank; specified time length of the test, "on-site" examinations will be required, etc.)

- Academic Honesty: Online quizzes are timed, quiz questions are randomized, and students cannot navigate freely through the quiz

Assessment and Evaluation Strategies:

1. How will student learning be assessed? Please list each graded component of the proposed course including the type and percentage value of each component. Indicate which learning outcome(s) are evaluated by which assessment component.

Assessment Strategy	Percentage (%) of Final Grade	Evaluated Learning Outcome(s)
Weekly Quizzes (10 x 2%)	20%	1 to 5
Midterm Exam	30%	1, 2, 5 and 6
Final Exam	50%	1 to 6

2. Formative feedback is just in time feedback to the students during the course that does not always count toward the final grade. This formative feedback can help the students and instructor progress towards the intended learning outcomes by providing ongoing, low stakes feedback at key points in a lesson or at milestones toward completing a major assignment.

Some examples of formative feedback include:

- a) a pre-test or quiz that asks students to share what they already know about a topic
- b) a think-pair-share exercise where students explore and discuss key course concepts individually, in pairs, and as part of a larger in class discussion
- c) exit cards following a lecture or lesson where students are asked to indicate what they have learned and questions they still have about the topic

List the formative assessment strategies that will be used in this course below.

- a) Quiz 1 will serve a dual purpose; it is meant for students to get practice and feel comfortable with the structure and setup of the weekly quizzes and will ask students to share their level of comfort with the prerequisite (grade 12) math concepts
- b) exit poll (via Zoom) following a tutorial where students are asked to indicate what they have learned and questions they still have about the topic

3. If the course is to be integrated (i.e., graduate/undergraduate), please list the additional evaluation requirements for graduate students.

Not applicable

Bibliography:

4. Please list the required readings for the course (include ebooks, online readings, and open access resources). The reading list must contain complete bibliographical information (full name of author, title, year of publication, etc.).

Sullivan, Lisa M.. *Essentials of Biostatistics in Public Health*, Jones & Bartlett Learning, LLC, 2017. *ProQuest Ebook Central*, <https://ebookcentral.proquest.com/lib/york/detail.action?docID=4821783>

5. Please list any suggested readings for the course (include ebooks, online readings, and open access resources). The reading list must contain complete bibliographical information (full name of author, title, year of publication, etc.).

Lane, David M. (Project Leader). *Online Statistics Education: A Multimedia Course of Study*. Rice University. Available at: <http://onlinestatbook.com/>

Wickham, Hadley, and Grolemund, Garrett. *R for Data Science: Import, Tidy, Transform, Visualize, and Model Data*, O'Reilly Media, Incorporated, 2017. *ProQuest Ebook Central*. Available to read online: <https://ebookcentral.proquest.com/lib/york/detail.action?docID=4770093>

Liu, Ching-Ti, Milton, Jacqueline N., and McIntosh, Avery. *Getting Started with "R"*, 2016. Boston University School of Public Health. Available at: https://sphweb.bumc.bu.edu/otlt/MPH-Modules/BS/R/R1_GettingStarted/

Heeren, Timothy C. and Milton, Jacqueline N. *Basic Statistical Analysis Using the R Statistical Package*, 2016. Boston University School of Public Health. Available at: <https://sphweb.bumc.bu.edu/otlt/MPH-Modules/BS/R/R-Manual/>

6. If the course is to be integrated (graduate/undergraduate), a list of the additional readings required of graduate students must be included. If no additional readings are required, a rationale should be provided.

Not applicable

Section E - Resources Requirement:

This section may need to be filled in with the help of your Chair/Director and operations manager:

1. Computing:

- Indicate the expected hardware, software and need for student access to computing labs, including the number of student access hours needed (e.g. access to teaching computer lab with SPSS installed; students required to bring their own device). Provide cost of software, where possible. Indicate, what the cost will be for students, if any?

Students required to have their own computer and install R and RStudio (open source free statistical software package).

2. Classroom:

- Indicate the expected specialized classroom needs (e.g. moveable table and chairs; audio/visual equipment; WIFI to support students with bringing their own device)

No specialized classroom needs.

3. Teaching Support:

• Does the course require technical support? (e.g. lab technician; UIT support). If yes, specify:	YES	NO
		X
• Does the course require a tutorial or lab in addition to lecture/seminar hours? If yes, specify and provide expected group size:	YES	NO
	X	
1-hour tutorial. 25 students per tutorial. Tutorials are held online and do not require a physical room.		
• Does the course require marker/grader, teaching assistant, lab demonstrator etc. support above those normally allocated by the department/school offering the courses?	YES	NO
	X	
If yes, specify why and for what duties/tasks the extra support is needed:		
Teaching assistant to lead each of the tutorials. Tutorials will focus mainly on learning how to use R.		
• If the course includes off campus practicums/placements or field experiences, such as students working with a community partner, indicate:		
○ Will the instructor need to travel to visit the off-campus community partner(s)?	YES	NO
		X
○ Will the Experiential Education Coordinator be required to support and maintain the experiential education component while the course is being offered? If yes, please specify:	YES	NO
		X
○ Is the placement intended to be domestic or international, or both?	Domestic	
	International	
	Both	
• If the course is blended or online, indicate whether the support of the eLearning specialist is required?	YES	NO
		X
If yes, please specify the type of eLearning supports you need:		

4. Statements of Support (please attach these to the proposal)

For new course proposals with resource implications please provide a supporting statement from your Chair/Director of your program. The Chair/Director should indicate how resourcing will be addressed e.g., through a reallocation of existing resources, with new/additional resources, etc.

For course proposal with impact on other programs (in the Faculty or out of the Faculty), please provide evidence of consultation and supporting statement from the other program(s).

Learning Technology Services (LTS) Statement:

If there is a technology-enhanced component to the course, a statement is required from the Learning Technology Services indicating whether resources are adequate to support the course. Requests for statements can directed to Rob Finlayson (rfinlays@yorku.ca). Please note, it will take two weeks to get a statement of support.

Library Support Statement:

Proposals for new courses must include a **library support statement** from the Bibliographer responsible for the relevant

discipline to indicate whether resources are adequate to support the course. To request a support statement, see the list of subject and liaison librarians at <http://www.library.yorku.ca/web/about-us/contact-us/liaison-librarians/>.

Revised September 2020

Memo

To: Professor Hannah Wong, School of Health Policy & Management
From: Thumeka Mgwigwi, Teaching and Learning Librarian, Scott Library
Date: 11 October 2022
Subject: Library Statement for Statistical Methods in Health Studies I

I have reviewed the course proposal material for *Statistical Methods in Health Studies I*. I am happy to report that York University Libraries will be able to support this course as titles in the bibliography are already held at York. A quick search of the York Libraries resources revealed more sources related to health and statistical methods as well as data analysis and analytics. In addition, this course will be supported by resources already available for related courses such as *HLST2300 Statistical Methods in Health Studies*.

For further research, students can use the online catalogue and periodical indexes listed in the [Health Studies and Global Health](#) research guide.

Students also have access to the Resource Sharing Department to request materials not held at York Libraries. Subject specialist librarians are always available to assist students with their research projects and assignments.



School/Department: SHPM

Course Rubric and Number: HLST 2302

Credit Weight: 3.00 **Effective Session:** Fall 2023

(e.g. 3.00, 6.00)

(e.g. Fall 2021, F/W 2021-22)

Course Title: *The official name of the course as it will appear in the Undergraduate Calendar.*

Statistical Methods in Health Studies II

Short Title: *Maximum 40 characters, including punctuation and spaces. The short title appears on any documents where space is limited (transcripts and calendar copy).*

Statistical Methods in Health Studies II

Brief Course Description: *For editorial consistency, verbs should be in the present tense and begin the description; e.g., "Analyzes the nature and extent of..."*

This is the official description of the course as it will appear in the Undergraduate Calendar. The course description should be carefully written to convey what the course is about. If applicable, include information regarding the language of instruction if other than English.

Extends the introduction of the study of fundamental concepts and techniques of descriptive and inferential statistics. Topics include correlation, linear and logistic regression, analysis of variance and non-parametric statistics.

List course(s) where applicable:

Prerequisites:	HH/HLST 2301 3.00
Corequisites:	
Cross-listed to:	
Course Credit Exclusions*:	HH/HLST 2300 6.00 or AP/ADMS 2300 6.00 (prior to summer 2018) or HH/KINE 2050 3.00 or HH/PSYC 2020 6.00 or HH/PSYC 2021 3.00 and HH/PSYC 2022 3.00
Integration**:	

*Course credit exclusion is a formal status accorded to pairs of courses that are recognized as having sufficient overlap in content to warrant specifically excluding students from obtaining credit for both.

**Integrated courses are graduate courses integrated (taught with) 4000-level undergraduate courses

Include the following information only if the course is: limited to a specific group of students; closed to a specific group of students; and if there is any additional information necessary for students to know before enrolling (notes section). If the course includes experiential education, such as whether the students will work with a community partner and/or if it will involve going off-campus, please include this in the notes section.

Open to:	Students in BHS program only
Not open to:	
Notes:	

Science Course:

Denotes courses in IHST, KINE or PSYC to count as science credit for BSc degree programs	YES	NO
		X

Section A - Course Rationale:

1. What is the rationale for creating this course (e.g., fills a gap in the curriculum, addresses a trend in the content area)?

There is an existing BHS Honours/Specialized Honours degree requirement, HLST 2300 6.00 Statistical Methods in Health Studies. We noted the following trends with HLST 2300 6.00 that impact degree progress for students in the BHS Honours and Specialized Honours degrees:

- **Issue:** Students transferring into the BHS Honours/Spec Honours programs that have 3.00 credits in Statistics have not covered sufficient statistics content to receive transfer credit for HLST 2300 6.00.
Solution: By splitting HLST 2300 6.00 into two 3.00 credit courses, this provides an option (where appropriate) for students to receive transfer credit for HLST 2301 3.00 and then they can complete HLST 2302 3.00 (proposed here) for their statistics degree requirement. Note, HLST students are often limited in their opportunities to enroll in possible 3.00 credit substitute courses in other Faculty of Health schools due to space issues.
- **Issue:** We tracked student success in HLST 2300 6.00 from 2017 to 2021. Compared to our other required HLST courses at the 2000-level, HLST 2300 6.00 had a higher proportion of students dropping the course and failing the course.

	HLST 2300 6.00	HLST 2020 3.00	HLST 2030 3.00	HLST 2040 3.00
Average % Students Drop (2017 – 2021)	27%	13%	13%	10%
Average % Students Fail (2017 – 2021)	11%	6%	3%	3%

Solution: There are a number of initiatives underway to improve student success in HLST 2300 6.00, however we also feel that offering statistics as two 3.00 credit courses will permit those students who fail the course or who drop the course the opportunity to avoid losing two semesters of progress (and avoid delaying their degree progress by one year).

Finally, having the flexibility to offer HLST 2300 6.00 as a 6.00 credit course, or as two 3.00 credit courses (HLST 2301 3.00 and HLST 2302 3.00) will provide flexibility in the annual course planning and resourcing exercise and permit SHPM to select the appropriate version of the course to respond to student needs and resource availability.

2. Describe how this new course aligns with the School/Dept and/or Faculty and/or University Academic Plans. For more information about these plans, contact your UPD, Department Chair, and/or the Associate Dean, Learning, Teaching, & Academic Programs.

Alignment with York's 2020-2025 SMA:

- Offering our 6.00 credits in Statistics as two separate 3.00-credit course is designed to improve program retention, on-time degree progress and graduation rates by offering students flexibility in statistics (a degree requirement) course enrollment options

Alignment with 2020-2025 UAP:

- 21st Century Learning: The course will be offered in a blended format, leveraging lessons learned in technology-enhanced learning over the last two years
- Knowledge for the Future: The course will teach the use of R for statistical analyses. Our community partners have indicated this is an industry expectation for students entering the workforce.
- From Access to Success: The course will offer more pathways for students to complete their 6.00 credits in statistics. Students will be able to access R for free – it is an open source free statistical software package.

Alignment with FoH Health@2020 Academic Plan:

- Promoting a High-Quality Learning Experience: Technology-enhanced learning and the incorporation of R ensures that students are engaging in course content that is directly aligned to market demand

3. How does this proposed course complement, align, or overlap with existing course offerings, particularly in terms of objectives and/or content? If overlap exists, please indicate the nature and extent of consultation which has taken place. If the course is to be cross-listed, integrated or listed as a course credit exclusion with another course, approval is required from all the relevant Faculties/Units.

This course overlaps with half of HLST 2300 6.00. This course will be a CCE for HLST 2300 6.00.

4. What is the expected enrolment in the course? If course enrollments are below 50 please explain why.

196 students per semester

Section B - Course Structure:

1. Is this course (Please select one with "X"):

	Fully online
	Fully face to face
X	Blended (i.e., one third of the face to face class time is replaced by online instruction, one third of the class time remains face to face, and the remaining third may be any combination of online and face to face delivery). More information about defining blended learning can be found in the Common Language for eLearning: http://avptl.info.yorku.ca/files/2017/03/2014-03-26-Common-Language-for-eLearning.pdf
	Other (please describe):

2. Number of contact hours (defined in terms of hours, weeks, etc.) involved. This information is particularly important to describe for blended and online courses as it indicates whether an effective length of term is being maintained.

3 hours per week x 12 weeks

3. a) If this course is offered in a blended format, what percentage of the course will be taught online? If not blended, go to # 4.

b) In absence of scheduled contact hours (face-to-face or online), please provide an indication of the estimated time students are likely to spend engaged in learning activities online required by the course.

c) In the absence of scheduled contact hours (face-to-face or online), please describe how the course design encourages student engagement and supports students in achieving the learning outcomes.

One-third of class time (1-hour tutorial) will be taught online, which may be synchronous, asynchronous, or a mixture of both; the remaining two hours are fully face to face lecture for most weeks, however some weeks may also offer online instruction dependent on the topic. The tutorial is a 1-hour scheduled contact hour.

4. Indicate the planned frequency of offering and number of sections anticipated (every year, alternate years, etc.)

This course will be offered at least once per year, usually in the Winter semester. Based on available resources, SHPM will determine if the statistics offerings will consist of either HLST 2301 3.00 + HLST 2302 3.00, or HLST 2300 6.00. For example, if available resources permit one instructor assigned for 6.00 credits, then we may offer the course as HLST 2300 6.00; however if available resources indicate that we must assign two instructors then consideration for offering the two 3.00 credit versions will occur. At this time, we do not see enrollment demand for both versions of the course being offered in the same academic year, however, should enrollment volumes increase, SHPM will schedule accordingly. For example, we are considering in future that we may begin to offer HLST 2300 6.00 in the summer semester if the new proposed Racialized Health and Disability Justice undergraduate program is approved as we anticipate that some of those students will wish to take credits in statistics.

YES	NO
X	

5. Can you staff this course using current teaching capacity?

If no, explain how this course will be resourced (e.g., additional hires proposed in hiring plan, etc.)

Not applicable

6. Please name the faculty member(s) in the school/dept who have the expertise and are willing to teach this course.

Hannah Wong
Matthias Hoben
Christo El Morr
Lynda van Dreumel

7. Does the course rely on faculty from other programs to teach this course? If so, specify (proposed instructor(s) name and department and attach a letter of support from the faculty member's home school/department UPD/Chair.

No

Section C - Course Design Information:

This section provides an opportunity to describe the course, its design, and how delivery of the course content aligns with the learning outcomes, teaching activities, and assessment methods. There is also an opportunity for describing how the course applies principles of experiential education, technology enhanced learning and universal design for learning.

- **Experiential Education** remains a top priority for York University and the Faculty of Health as it offers a range of benefits for students related to academic performance, civic engagement and employability. Note that providing and facilitating opportunities for structured, critical reflection (e.g. using iclicker/REEF polling, exit cards, journal entry) is a key component of experiential education. Course directors are invited to integrate EE into their course where possible, but it is understood that some EE activities may not be feasible in every course. Go to <https://health.yorku.ca/experiential-education/faculty/> to see definitions of course focused, community focused, and work focused EE, information on the benefits of EE for students and course directors, and other details.
- The integration of tools and strategies for **technology enhanced learning** (e.g. online learning management system like Moodle, use of polling technology such as iclicker/REEF and other in class technology e.g., see <https://student.computing.yorku.ca/technology-used-in-courses/>) may provide useful tools for encouraging in class engagement and facilitating deeper learning. For help with online and blended learning course development go to <https://its.info.yorku.ca/health/>.
- The Faculty of Health is committed to the **universal design for learning** principles, i.e., offering and ensuring a diverse array of opportunities for all learners to engage, learn, and demonstrate their knowledge. More information about Universal Design for Learning, as well as recommendations for accommodations and inclusive teaching, can be found at: http://udlguidelines.cast.org/binaries/content/assets/udlguidelines/udlg-v2-2/udlg_graphicorganizer_v2-2_numbers-no.pdf and on the Teaching Commons website. Therefore, when designing a course, be sure to consider
 - multiple means of engagement (How will diverse students access and participate in the learning & teaching activities?)
 - multiple means of representation (How will course content be presented in a variety of different ways to support different learning needs and preferences?)
 - multiple means of action & expression (What diverse ways will students be able to demonstrate their learning?)

1. Course Topics/Theories

List the key topic areas taught in this course.

- Epidemiology
- Differences between two groups (parametric and non-parametric)
- Differences between three or more conditions (parametric and non-parametric)
- Testing associations between categorical variables
- Correlation
- Linear regression
- Multiple linear regression
- Binary logistic regression
- Multiple logistic regression

	YES	NO
Will the course have substantial Indigenous (Aboriginal)* content?		X
Will the course include Indigenous (Aboriginal)* identity as either a module or field of study?		X
Will the course include component(s) from Aboriginal Peoples' language, history, cultural, heritage, artefacts, or traditional knowledge?		X

If you answered Yes to at least one of the questions above, provide a summary and/or list of the Indigenous (Aboriginal)* content or components you are proposing to include in your course in the box below.

Not applicable

*The Constitution Act, 1982, section 35(2) defines Aboriginal Peoples to include all Indigenous people of Canada – Indians (Status, Non-Status or First Nations identified), Métis and Inuit people.

2. Course Teaching Objectives

Course teaching objectives are broad goals for the course.

Examples of course teaching objectives:

- Exposes students to the various methods used for investigating the structure and function of the human brain.
- Provides students the opportunity to develop and practice skills in effective communication.

List the teaching objectives for the course below:

Instill in students a sense of inquisitiveness in data.

Foster student participation in debates on healthcare reform using statistical techniques and procedures.

Provide students the opportunity to develop and practice skills in data analytics.

3. Course Student Learning Outcomes:

Learning outcomes provide a framework for assessment by stating what the learners will be able to demonstrate after completing the course. A succinct learning outcome specifies the tasks students are expected to be able to perform and the level of competence expected for the tasks. Course Learning Outcomes are observable, measurable goals for students and their learning.

Examples of course learning outcomes:

- Students will be able to correctly identify the brain's major components and gross functional areas.
- Students will be able to accurately describe the factors that impact healthy aging.
- Students will be able to critically analyze an academic journal article to determine the merits and drawbacks of the published research.

To help describe learning outcomes, consider the key questions below:

What essential knowledge, skills, and attitudes etc. should students acquire?

- How sophisticated or complex (memorization, analysis, creation, etc.) is students learning to be?

- What will students be able to do or how will they demonstrate/articulate their level of learning?
- What information is needed to be collected to verify/demonstrate students' attainment of learning outcomes?
- How informative are each of these assessment tasks to understanding the student learning process?
- Are these clearly stated and communicated to students?

More information and additional resources can be found on the [Teaching Commons website](#).

List and number the learning outcomes for the course in the section below:

1. Analyze risk ratios and odds ratios
2. Conduct statistical analyses to determine whether there are differences between groups (parametric and non-parametric, independent and repeated measures)
3. Describe relationships between categorical, ordinal and continuous variables (chi-square, Pearson's correlation and Spearman's correlation)
4. Predict outcomes (continuous and binary) from scale and categorical predictor variables (linear regression and binary logistic regression)
5. Use a statistical software package to carry out statistical analyses and generate statistical outputs in the forms of charts and graphs.
6. Plan timelines for effective personal learning

4. Course Teaching Strategies and Learning Activities

What teaching strategies and learning activities (including experiential education) will take place as part of this course? What will students be doing each week in class? How will these activities help support students' learning as defined by the learning outcomes.

To help identify course learning activities that will help students work toward achieving intended learning outcomes, reflect on these key questions:

- How will students receive or gain the information necessary for achieving the course intended learning outcomes?
- What experiential education activities will students engage in?
- What opportunities will or could students be provided to practice the skills they will develop?
- How and when will students engage with each other, with the instructor, and/or with course content?
- If technology-enhanced learning is incorporated into the course, what activities will the students engage in?

Examples:

(This is not an exhaustive list, but rather a summary of the strategies an instructor may use to encourage and facilitate meaningful learning throughout the course)

- In class discussions
- Lecture
- Online discussion forums (e.g. in Moodle)
- Active learning strategies (e.g. think, pair, share; structured debates)
- Wikis (contribute to and curate collaborative content)
- Experiential Education (EE)- Classroom Focused Activities (e.g. guest speakers, role playing, visual media, case studies, simulations, workshops and laboratory, course-based research, etc.)
- EE- Community Focused EE Activities (e.g. community-based learning; community-based research, community service learning)

List the teaching strategies and learning activities that will be included in this course:

- In class discussions of mainstream media and scientific literature that report on statistical information (analysis, interpretation, display)
- Lectures with examples (data, analysis and reference resources) on current events (e.g., COVID-19, social determinants of health, measures of healthcare efficiency, access, equity, timeliness, effectiveness)
- Creation of dataset to be used to generate descriptive and inferential statistics (e.g., analysis of nominal, ordinal and scale variables)
- Use of visual media (infographics) that highlight key statistical findings in a concise, visual and easy-to-share format

Section D - Course Mapping and Constructive Alignment

This section is designed to help you demonstrate the connections between your student learning outcomes, teaching and learning activities, and assessment strategies. For each teaching and learning activity, please i) identify the learning outcome it will help the students achieve and ii) if the activity will include a formal, graded assessment of student learning. For EE activities, also identify iii) how you will engage students in reflection around the activity (i.e. critically examining the experience), and iv) the type of EE strategy the activity corresponds to.

			For EE Activities Only	
Teaching and Learning Activity	Which course learning outcome/s will this activity help student achieve?	Will this activity include a formal, graded assessment of student learning? (Y/N) <i>A detailed description of assessment and evaluation strategies will be provided in the next section.</i>	How you will engage students in reflection around this activity?	Corresponding EE Strategy 1- Classroom Focused 2- Community Focused 3- Work Focused
- In class discussions of mainstream media and scientific literature that report on statistical information (analysis, interpretation, display)	<i>Learning outcomes 1-5</i>	Y		
- Lectures with examples (data, analysis and reference resources) on current events (e.g., COVID-19, social determinants of health, measures of healthcare efficiency, access, equity, timeliness, effectiveness)	<i>Learning outcomes 1-5</i>	Y		

- Creation of dataset to be used to generate descriptive and inferential statistics (e.g., analysis of nominal, ordinal and scale variables	<i>Learning outcomes 2-5</i>	Y		
- Use of visual media (infographics) that highlight key statistical findings in a concise, visual and easy-to-share format -	<i>Learning outcomes 2-5</i>	Y	<i>Think-Pair-Share- In pairs, students will discuss two potential improvements to the infographic, and share responses with the class.</i>	1

1. If the course will not include any type of experiential education, please comment below on the rationale for not incorporating experiential education into the course.

Not applicable

	YES	NO
2. Will the course engage Indigenous (Aboriginal) communities (including reserves, territories, departments, or community organizations, etc) on experiential education?		X

If yes, please comment below on how you will or might engage Indigenous (Aboriginal) communities in experiential education

Not applicable

Learning/Teaching with Technology:

3. How are learning or teaching technologies incorporated into the course?

- All course content (slides, links to resources, required readings, lecture recordings) will be available on eClass
- Students will use eClass Quiz to complete weekly summative assessments
- Students will use R, an open source and free statistical analysis software, to conduct statistical analyses

4. If the course does not include any type of technology enhanced learning, please comment below on the rationale for not incorporating learning or teaching technologies in the course.

Not applicable

5. If the proposed course employs technology-enhanced forms of delivery (e.g., replacing in-class time with online learning activities), please identify how the integrity of the learning evaluation will be maintained (e.g., using online quizzes that randomly selects questions from a test-bank; specified time length of the test, "on-site" examinations will be required, etc.)

- Academic Honesty: Online quizzes are timed, quiz questions are randomized, and students cannot navigate freely through the quiz

Assessment and Evaluation Strategies:

1. How will student learning be assessed? Please list each graded component of the proposed course including the type and percentage value of each component. Indicate which learning outcome(s) are evaluated by which assessment component.

Assessment Strategy	Percentage (%) of Final Grade	Evaluated Learning Outcome(s)
Weekly Quizzes (10 x 2%)	20%	1 to 5
Midterm Exam	30%	1 to 3 and 6
Final Exam	50%	1 to 6

2. Formative feedback is just in time feedback to the students during the course that does not always count toward the final grade. This formative feedback can help the students and instructor progress towards the intended learning outcomes by providing ongoing, low stakes feedback at key points in a lesson or at milestones toward completing a major assignment.

Some examples of formative feedback include:

- a) a pre-test or quiz that asks students to share what they already know about a topic
- b) a think-pair-share exercise where students explore and discuss key course concepts individually, in pairs, and as part of a larger in class discussion
- c) exit cards following a lecture or lesson where students are asked to indicate what they have learned and questions they still have about the topic

List the formative assessment strategies that will be used in this course below.

Exit poll (via Zoom) following a tutorial where students are asked to indicate what they have learned and questions they still have about the topic.

3. If the course is to be integrated (i.e., graduate/undergraduate), please list the additional evaluation requirements for graduate students.

Not applicable

Bibliography:

4. Please list the required readings for the course (include ebooks, online readings, and open access resources). The reading list must contain complete bibliographical information (full name of author, title, year of publication, etc.).

Sullivan, Lisa M.. *Essentials of Biostatistics in Public Health*, Jones & Bartlett Learning, LLC, 2017. *ProQuest Ebook Central*, <https://ebookcentral.proquest.com/lib/york/detail.action?docID=4821783>

5. Please list any suggested readings for the course (include ebooks, online readings, and open access resources). The reading list must contain complete bibliographical information (full name of author, title, year of publication, etc.)

Lane, David M. (Project Leader). *Online Statistics Education: A Multimedia Course of Study*. Rice University. Available at: <http://onlinestatbook.com/>

Wickham, Hadley, and Golemund, Garrett. *R for Data Science: Import, Tidy, Transform, Visualize, and Model Data*, O'Reilly Media, Incorporated, 2017. *ProQuest Ebook Central*. Available to read online: <https://ebookcentral.proquest.com/lib/york/detail.action?docID=4770093>

Liu, Ching-Ti, Milton, Jacqueline N., and McIntosh, Avery. *Getting Started with "R"*, 2016. Boston University School of Public Health. Available at: https://sphweb.bumc.bu.edu/otlt/MPH-Modules/BS/R/R1_GettingStarted/

Heeren, Timothy C. and Milton, Jacqueline N. *Basic Statistical Analysis Using the R Statistical Package*, 2016. Boston University School of Public Health. Available at: <https://sphweb.bumc.bu.edu/otlt/MPH-Modules/BS/R/R-Manual/>

6. If the course is to be integrated (graduate/undergraduate), a list of the additional readings required of graduate students must be included. If no additional readings are required, a rationale should be provided.

Not applicable

Section E - Resources Requirement:

This section may need to be filled in with the help of your Chair/Director and operations manager:

1. Computing:

- Indicate the expected hardware, software and need for student access to computing labs, including the number of student access hours needed (e.g. access to teaching computer lab with SPSS installed; students required to bring their own device). Provide cost of software, where possible. Indicate, what the cost will be for students, if any?

Students required to have their own computer and install R and RStudio (open source free statistical software package).

2. Classroom:

- Indicate the expected specialized classroom needs (e.g. moveable table and chairs; audio/visual equipment; WIFI to support students with bringing their own device)

No specialized classroom needs.

3. Teaching Support:

• Does the course require technical support? (e.g. lab technician; UIT support). If yes, specify:	YES	NO
		X
• Does the course require a tutorial or lab in addition to lecture/seminar hours? If yes, specify and provide expected group size:	YES	NO
	X	
1-hour tutorial. 25 students per tutorial. Tutorials are held online and do not require a physical room.		
• Does the course require marker/grader, teaching assistant, lab demonstrator etc. support above those normally allocated by the department/school offering the courses? If yes, specify why and for what duties/tasks the extra support is needed:	YES	NO
	X	
Teaching assistant to lead each of the tutorials. Tutorials will focus mainly on learning how to use R.		
• If the course includes off campus practicums/placements or field experiences, such as students working with a community partner, indicate: ○ Will the instructor need to travel to visit the off-campus community partner(s)?	YES	NO
		X
○ Will the Experiential Education Coordinator be required to support and maintain the experiential education component while the course is being offered? If yes, please specify:	YES	NO
		X
○ Is the placement intended to be domestic or international, or both?	Domestic	
	International	
	Both	
• If the course is blended or online, indicate whether the support of the eLearning specialist is required? If yes, please specify the type of eLearning supports you need:	YES	NO
		X

4. Statements of Support (please attach these to the proposal)

For new course proposals with resource implications please provide a supporting statement from your Chair/Director of your program. The Chair/Director should indicate how resourcing will be addressed e.g., through a reallocation of existing resources, with new/additional resources, etc.

For course proposal with impact on other programs (in the Faculty or out of the Faculty), please provide evidence of consultation and supporting statement from the other program(s).

Learning Technology Services (LTS) Statement:

If there is a technology-enhanced component to the course, a statement is required from the Learning Technology Services indicating whether resources are adequate to support the course. Requests for statements can be directed to Rob Finlayson (rfinlays@yorku.ca). Please note, it will take two weeks to get a statement of support.

Library Support Statement:

Proposals for new courses must include a **library support statement** from the Bibliographer responsible for the relevant discipline to indicate whether resources are adequate to support the course. To request a support statement, see the list of subject and liaison librarians at <http://www.library.yorku.ca/web/about-us/contact-us/liaison-librarians/>.

YORK UNIVERSITY
LIBRARIES

Scott Research and
Collections

310 Scott Library
4700 Keele St.
Toronto ON
Canada M3J 1P3
Tel 416 736 2100
Ext. 20073
Fax 416 736 5920
www.library.yorku.ca/

Memo

To: Professor Hannah Wong, School of Health Policy & Management
From: Thumeka Mgwigwi, Teaching and Learning Librarian, Scott Library
Date: 11 October 2022
Subject: Library Statement for Statistical Methods in Health Studies II

I have reviewed the course proposal material for *Statistical Methods in Health Studies II*. I am happy to report that York University Libraries will be able to support this course as titles in the bibliography are already held at York. A quick search of the York Libraries resources revealed more sources related to health and statistical methods as well as data analysis and analytics. In addition, this course will be supported by resources already available for related courses such as *HLST2300 Statistical Methods in Health Studies*.

For further research, students can use the online catalogue and periodical indexes listed in the [Health Studies and Global Health](#) research guide.

Students also have access to the Resource Sharing Department to request materials not held at York Libraries. Subject specialist librarians are always available to assist students with their research projects and assignments.

