THE UNIVERSITY OF BRITISH COLUMBIA

Land Acknowledgement

We respectfully acknowledge the Syilx Okanagan Nation and their peoples, in whose traditional, ancestral, unceded territory UBC Okanagan is situated.

HES 505: Quantitative Analyses - Decision Making Using Data in Health and Exercise Sciences

Faculty of Health and Social Development
School **of** Health and Exercise Sciences
Term 1 Winter 2026

Lecture Time & Location

- Course Location: FIP 133
- Course Days & Time: Fridays from 11am to 1:30pm
- Delivery Modality: Lecture-seminar format; In-Person (primary) & Online (secondary)

Office Hours & Communication

- Office Hours: Monday from 1:30pm to 2:00pm or by appointment
- Instructor(s): Miho Asano
- Office: ART 166
- Contact: email or via Canvas
- Email: m.asano@ubc.ca
- ***Communication Note 1****: Please note that emails may not be answered immediately, particularly during evenings, weekends, and holidays. Please allow at least 24–48 hours for a response. Thank you for your patience and understanding in advance.*
- ***Communication Note 2****: Please include your course ID (e.g., HESXXX) in the subject heading.*

Course Overview

- The course is design to facilitate students to understand foundation of statistical methods, quantitative data and analyses.
- The course content may include but are not limited to: data management, descriptive and inferential statistics.
- Students will learn how to: select appropriate statistical methods, analyze quantitative data, and interpret analytical results (commonly seen in health and exercise sciences research).

Course Format

- The course uses lecture to achieve the learning objectives. We will use a variety of learning methods, including lectures, group discussions, manipulation of data sets, the use of e-learning tools, and critical reflections on one's own research agenda.
- Asynchronous materials maybe provided when applicable to facilitate students solidify lecture information and offer opportunities to practice content learned.
- *This course consists of one session of up to 150 minutes per week, except where otherwise indicated. In class, content will be delivered through a combination of PowerPoint slides, videos, and activities designed to engage you in the learning process.*
- *Lectures, tutorials and activities may be offered virtually via UBC Zoom, with advance notice.*

Learning Outcomes

By the end of this course successful students will be able to:

- Understand the foundations of statistical methods, which may include but are not limited to central tendency, probability and the normal curve, sampling distribution techniques, population estimates, assumptions of statistical inferencing, and hypothesis testing techniques (LO1)
- Demonstrate sufficient competence in basic quantitative data analysis (LO2)
- Interpret results from health-related research that employs common statistical methods (LO3)
- Create a statistical analysis plan to answer a research question of interest (LO4)

Required Text & Learning Materials

- There is no required textbook for this course. Any recommended readings and materials will be made available on Canvas in the form of citations, links, or attachments.
- One book is reserved at UBCO Library for your reference and information.
  Plichta Kellar, S. B., Kelvin, E. A., & Munro, B. H. (2013). Munro's statistical methods for health care research (6th ed.). Wolters Kluwer Health/Lippincott Williams & Wilkins.

Course Schedule (subject to modification of topics & timelines)

Week #	Day	Date	Main Session Topic
1	Friday	Sept 11	NO Class – HES Graduate Students Orientation Day
2	Friday	Sept 18	Introduction to HES 505 & You Analytical techniques to be covered (overview) Quantitative research designs and questions (overview)
3	Friday	Sept 25	Types of data Descriptive statistics Introduction to Statistical Software (overview)
4	Friday	Oct 2	Inferential statistics concerning means: parametric statistics
5	Friday	Oct 9	Inferential statistics concerning central tendency: non-parametric statistics *Info on the Paired/Group Assignment*
6	Friday	Oct 16	NO Class - CSEP Conference 2026 Week ***Self-paced Collaborative Learning***
7	Friday	Oct 23	Introduction to Linear Regression
8	Friday	Oct 30	Introduction to Logistic Regression
9	Friday	Nov 6	*Guest Lecture Confirmed (zoom)*
10	Friday	Nov 13	NO Class – Reading Break
11	Friday	Nov 20	*Research Communication & Presentation Preparations*
12	Friday	Nov 27	In-Class Presentation 1 (Final)
13	Friday	Dec 4	In-Class Presentation 2 (Final)

***Note**: Recommended and/or required reading materials (and/or their references) will be posted on Canvas if any; one book is reserved at the UBCO library under HES 505.*

Assessments of Learning & Evaluation Criteria*

In-Class

Performance Assessment *(40%)*

1. Presentation of Your Proposed Study: Focus on Methods and Analytical Plans
   - This task will be completed in-person, at UBCO and at one of the two dates (Nov. 27 or Dec. 4)
   - You will give a presentation about your proposed study
   - You will complete one Q & A session after your presentation
   - *Course weight: 40%* (20% on your talk; 20% on your presentation material)
   - Date for your material: November 26, 2026 at 11:59 pm (submission via Canvas)

Engagement Activity *(20%)*

2. Presentation Facilitation for Your Assigned Partner
   - This task will be completed in-person, at UBCO and at one of the two dates (Nov. 27 or Dec. 4)
   - You will facilitate your assigned partner's presentation
   - *Course weight: 10%* (engagement mark)
   - Date of your facilitation: November 27 or December 4, 2026
3. Peer Reviews of Presentations
   - This task will be completed live at both dates (Nov 27 or Dec 4)
   - You will attend your peer's presentation and complete one appraisal form per presentation
   - *Course weight: 10%* (engagement mark for completing all reviews; expected to be eight in total)
   - Date: November 27 or December 4, 2026

At-home

Paired/Team Written Work *(40%)*

- This activity must be completed in pairs or groups of three.
- Only one submission is required per pair or group. The pair or group will receive one shared mark.
- You will complete a series of tasks and submit one report. Sample tasks are:
  1) Select one peer-reviewed research article that uses both descriptive and inferential statistics.
  2) Identify the article's primary research question or objective.
  3) Identify the primary outcome and describe it, including:
     - how it was measured;
     - what type of data it represents; and
     - what type of variable it is.
  4) Identify the primary statistical approach used (e.g., t-test, chi-square test).
  5) Explain why the statistical approach was appropriate in relation to the research question and primary outcome.
  6) Describe whether the results were presented and explained clearly.
  7) Identify what you would change or improve to make the methods and/or presentation of the results clearer or more effective.
- *Course weight: 40%*
- Date: October 23, 2026 at 11:59pm via Canvas

**Assessment foci and date - subject to modification with advance notice & discussions.*

UBC Policies & Resources

UBC Values

UBC creates an exceptional learning environment that fosters global citizenship, advances a civil and sustainable society, and supports outstanding research to serve the people of British Columbia, Canada, and the world. UBC's core values are excellence, integrity, respect, academic freedom, and accountability.

Policies and Regulations

Visit UBC Okanagan's Academic Calendar for a list of campus-wide regulations and policies, as well as term dates and deadlines.

About the Academic Integrity Matters (AIM) Program

The academic enterprise is founded on honesty, civility, and integrity. As members of this enterprise, all students are expected to know, understand, and follow the codes of conduct regarding academic integrity. At the most basic level, this means submitting only original work done by you and acknowledging all sources of information or ideas and attributing them to others as required. This also means you should not cheat, copy, or mislead others about what is your work. Violations of academic integrity (i.e., misconduct) lead to the breakdown of the academic enterprise, and therefore serious consequences arise and harsh sanctions are imposed. For example, incidences of plagiarism or cheating usually result in a failing grade or mark of zero on the assignment or in the course. Careful records are kept to monitor and prevent recidivism.

A more detailed description of academic integrity, including the University's policies and procedures, may be found in the Academic Calendar and the Academic Integrity Matters Program website.

Statement on Academic Misconduct

The academic enterprise is founded on honesty, civility, and integrity. Violations of academic integrity (i.e., academic misconduct) lead to the breakdown of the academic enterprise, and therefore serious consequences arise and harsh sanctions are imposed. For example, incidences of plagiarism or cheating may result in a mark of zero on the assignment or exam and more serious consequences may apply if the matter is referred for consideration for academic discipline. Careful records are kept to monitor and prevent recurrences. Any instance of cheating or taking credit for someone else's work, whether intentionally or unintentionally, can and often will result in at minimum a grade of zero for the assignment, and these cases will be reported to the Head of the Department and Associate Dean Academic of the Faculty.

Final Examinations

You can find the Senate-approved term and examination dates here. Except in the case of examination clashes and hardships (three or more formal examinations scheduled within a 27-hour period) or unforeseen events, students will be permitted to apply for out-of-time final examinations only if they are representing the University, the province, or the country in a competition or performance; serving in the Canadian military; observing a religious rite; working to support themselves or their family; or caring for a family member. Unforeseen events include (but may not be limited to) the following: ill health or other personal challenges that arise during a term and changes in the requirements of an ongoing job. Further

information on Academic Concession can be found under Policies and Regulation in the Okanagan Academic Calendar.

Grading Practices

Faculties, departments, and schools reserve the right to scale grades in order to maintain equity among sections and conformity to University, faculty, department, or school norms. Students should therefore note that an unofficial grade given by an instructor might be changed by the faculty, department, or school. Grades are not official until they appear on a student's academic record. Further information on Grading Practices can be found in the Okanagan Academic Calendar.

Resources to Support Student Success

UBC Okanagan Disability Resource Centre

The DRC facilitates disability-related accommodations and programming initiatives to remove barriers for students with disabilities and ongoing medical conditions. If you require academic accommodations to achieve the objectives of a course, please contact the DRC at:

- Email: drc.questions@ubc.ca
- https://students.ok.ubc.ca/academic-success/disability-resources/

UBC Okanagan Equity and Inclusion Office

Through leadership, vision, and collaborative action, the Equity & Inclusion Office (EIO) develops action strategies in support of efforts to embed equity and inclusion in the daily operations across the campus. The EIO provides education and training from cultivating respectful, inclusive spaces and communities to understanding unconscious/implicit bias and its operation within in campus environments. UBC Policy 3 prohibits discrimination and harassment on the basis of BC's Human Rights Code. If you require assistance related to an issue of equity, educational programs, discrimination or harassment please contact the EIO.

- Email: equity.ubco@ubc.ca
- equity.ok.ubc.ca

Student Wellness

At UBC Okanagan health services to students are provided by Student Wellness. Nurses, physicians and counsellors provide health care and counselling related to physical health, emotional/mental health and sexual/reproductive health concerns. As well, health promotion, education and research activities are provided to the campus community. If you require assistance with your health, please contact Student Wellness for more information or to book an appointment.

- Email: healthwellness.okanagan@ubc.ca
- https://students.ok.ubc.ca/health-wellness/

Office of the Ombudperson

The Office of the Ombudsperson for Students is an independent, confidential and impartial resource to ensure students are treated fairly. The Ombuds Office helps students navigate campus-related fairness concerns. They work with UBC community members individually and at the systemic level to ensure

students are treated fairly and can learn, work and live in a fair, equitable and respectful environment. Ombuds helps students gain clarity on UBC policies and procedures, explore options, identify next steps, recommend resources, plan strategies and receive objective feedback to promote constructive problem solving. If you require assistance, please feel free to reach out for more information or to arrange an appointment.

- Email: ombuds.office.ok@ubc.ca
- www.ombudsoffice.ubc.ca

Student Learning Hub

The Student Learning Hub is your go-to resource for free math, science, writing, and language learning support. The Hub welcomes undergraduate students from all disciplines and year levels to access a range of supports that include **tutoring in math, sciences, languages, and writing, as well as help with study skills and learning strategies**. Students are encouraged to visit often and early to build the skills, strategies and behaviors that are essential to being a confident and independent learner. For more information, please visit the Hub's website.

- Email: learning.hub@ubc.ca
- https://students.ok.ubc.ca/academic-success/learning-hub/

The Global Engagement Office

The Global Engagement Office provides advising and resources to assist International students in navigating immigration, health insurance, and settlement matters, as well as opportunities for intercultural learning, and resources for Go Global experiences available to all UBC Okanagan students, and more.

- Email: ubco.global@ubc.ca
- https://students.ok.ubc.ca/about-the-avp-students-portfolio/directory/global-engagement-office/

Safewalk

Don't want to walk alone at night? Not too sure how to get somewhere on campus?

- Call Safewalk at **250-807-8076**.
- For more information, see: www.security.ok.ubc.ca

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