Version date = 07 Jan 2024. May be revisions or corrections after 07 Jan 2024. Always check online syllabus in UBC Canvas website for most recent version syllabus.

Course

Phil 125 Jan-Apr 2024

Lecture meeting classes

Tue and Thu 3.30-5PM Irving K Barber Learning Centre 182

Classes either both InPerson and ZOOM or just ZOOM. Go to canvas course website > ZOOM > meetinglinks

Course Organizer

Leslie Burkholder

Office Buchanan E280, 604-822-4836, email leslie.burkholder@ubc.ca.

Student drop-in office hours Wed 3-5.30PM PST (Vancouver time). Sometimes will be ZOOM (go to course website in Canvas > ZOOM > meetinglinks). Rule: If no ZOOM meeting link then in-person office hour. If ZOOM meeting link then no in-person office hour.

Course TAs

To be determined

Learning Goals

Upon successful completion of this course students will be able to analyze and evaluate investigations and reasoning in investigations in science, especially health sciences / medicine examples.

Course materials

Online in Canvas in course website modules folders. No $ purchase.

Evaluation/Assessment

70% = 3 timed supervised tests (total about 6 hours). ZOOM supervised tests done in Canvas. Closed book, closed computer windows, non-cumulative, one try. Worth each test depends on number questions in test. 1 point on any supervised test worth same as 1 point on any other supervised test. Grade may need to be adjusted to follow Philosophy department rules.

5% = 1 computer graded course intro quiz + About 15 computer graded homework quizzes in Canvas. Homework exercises done at home. Open book, open computer windows, non-cumulative, one try each. Average grade taken. Worth each homework depends on number questions. 1 point on any Canvas homework exercise worth same as 1 point on any other Canvas homework exercise. Homeworks due by midnight (PST) two weeks after assigned. Check course syllabus for date. No penalty late submissions. Grade may need to be adjusted to follow Philosophy department rules.

25% = Human graded lab assignments. Graded for correctness. Late submissions worth 50%. Grade may

need to be adjusted to follow Philosophy department rules.

If you miss marked coursework (assignment, exam, presentation, participation in class) and are an Arts student, review the Faculty of Arts' academic concession page and then complete Arts Academic Advising's online academic concession form, so that an advisor can evaluate your concession case. If you are a student in a different Faculty, please consult your Faculty's webpage on academic concession, and then contact me where appropriate.

Resources Supporting Student Success

UBC provides resources to support student learning and to maintain healthy lifestyles but recognizes that sometimes crises arise and so there are additional resources to access including those for survivors of sexual violence. UBC values respect for the person and ideas of all members of the academic community. Harassment and discrimination are not tolerated nor is suppression of academic freedom. UBC provides appropriate accommodation for students with disabilities and for religious and cultural observances. UBC values academic honesty and students are expected to acknowledge the ideas generated by others and to uphold the highest academic standards in all of their actions. Details of the policies and how to access support are available here (https://senate.ubc.ca/policies- resources-support-student-success)

Academic Integrity

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 may result in a mark of zero on the assignment or exam and more serious consequences may apply when the matter is referred to the Office of the Dean. Careful records are kept in order to monitor and prevent recurrences. A more detailed description of academic integrity, including the University's policies and procedures, may be found in the UBC Calendar: Student Conduct and Discipline.

Academic Accommodation for Students with Disabilities

Academic accommodations help students with a disability or ongoing medical condition overcome challenges that may affect their academic success. Students requiring academic accommodations must register with Access & Diversity. A&D will determine that student's eligibility for accommodations in accordance with Policy 73: Academic Accommodation for Students with Disabilities. Academic accommodations are not determined by your instructors, and instructors should not ask you about the nature of your disability or ongoing medical condition, or request copies of your disability documentation. However, your instructor may consult with Access and Diversity should the accommodations affect the essential learning outcomes of a course.

Week1 (Starting Mon 08 Jan 2024)

Topics (Tue and Thu): Introduction to course. Course goals and setup. Parts scientific investigations, basic reasoning in words. Example Brain bisection and function corpus callosum.

Watch "Gazziniga Gifford". Go to canvas course website > media gallery

Read "Gazziniga split brains". Go to canvas course website > modules > week1.

Read "Morling_SamplePopulation". Go to canvas course website > modules > week1.

Relevant practice computer graded homeworks week 1: Course orientation quiz. Due ?. Lateness penalty 0%.

No human graded lab assignment week1

Week2 (Starting Mon 15 Jan 2024)

Topics (Tue and Thu): Bayes's formula reasoning. Example DNA structure.

Read Giere, ch 2 from Understanding Scientific Reasoning. Go to canvas course website > modules > week2

Watch "DNA double helix discovery". Go to canvas course website > media gallery

Read "Hayes probability". Go to canvas course website > modules > week2

Read "Hayes on Bayes". Go to canvas course website > modules > week2

Watch "Prior probabilities". Go to canvas course website > media gallery

Relevant computer graded practice homeworks week2: ? Due ?. Lateness penalty 0%.

Human graded lab assignment week2? Due ?. Lateness penalty 50%.

Week3 (Starting Mon 22 Jan 2024)

Topics (Tue and Thu): Sampling and populations

Read "Big picture sampling". Go to canvas course website > modules > week5.

Watch "SamplingMethods". Go to canvas course website > media gallery.

Relevant practice homeworks week3: ? Due ?. Lateness penalty 0%.

Human graded lab assignment week3? Due ?. Lateness penalty 50%.

Week4 (Starting Mon 29 Jan 2024)

Topics (Tue): Bayes's formula reasoning. Medical tests.

Watch Tan, "COVID tests". Go to canvas course website > media gallery.

Read Mukerherjee, Laws of Medicine excerpt about Bayes, medical diagnosis, and medical tests. Go to canvas course website > modules > week4

Relevant practice homeworks week 4: ? Due ?. Lateness penalty 0%.

Topics (Thu): Example Mendel's peas and Mendelian genetics.

Read parts Wessells and Hopson textbook on Mendel. Go to canvas course website > modules > week4

Do practice exercises on Mendelian genetics at

http://www.biology.arizona.edu/mendelian_genetics/mendelian_genetics.html

Relevant practice homeworks week4:? Due ?. Lateness penalty 0%.

No human graded lab assignment

Supervised test 1. Sign-up for day and time in canvas. Go to canvas course website > people > groups. Based on computer graded practice homeworks ? and human graded labs ?.

Week5 (Starting Mon 5 Feb 2024)

Topics (Tue and Thu): Example Mendel's peas and Mendelian genetics. Sample data predictions. Binomial formula and simulations

Read Newmark on binomial formula in Course Materials Folder. Go to canvas course website > modules > week5.

Read Moore "Simulation". Go to canvas course website > modules > week5

Read Moore "Sampling distributions". Go to canvas course website > modules > week5

Relevant computer graded practice homeworks week5:? Due ?. Lateness penalty 0%.

Human graded lab assignment week5? Due ?. Lateness penalty 50%.

Week6 (Starting Mon 12 Feb 2024)

Topics (Thu and Thu): Example Therapeutic touch.

Read "Therapeutic touch: Worth trying?". Go to canvas course website > modules > week8.

Watch "Stossel Rosa therapeutic touch". Go to canvas course website > media gallery.

Watch "Standard deviation values". Go to canvas course website > media gallery.

Watch "Normal distribution". Go to canvas course website > media gallery.

Relevant computer graded practice homeworks week6:? Due ?. Lateness penalty 0%.

Human graded lab assignment week6? Due ?. Lateness penalty 50%.

Week7 (Starting Mon 19 Feb 2024)

Midterm break Mon 19 - Fri 23 Feb

Week8 (Starting Mon 26 Feb 2024)

Topics (Tue and Thu): Example Therapeutic touch. Prediction probability Pvalues.

Watch "Central limit theorem". Go to canvas course website > media gallery.

Watch "Understanding p-values". Go to canvas course website > media gallery.

Read about reasoning of P-values in ISI ch 1. Go to canvas course website > modules > week8

Relevant computer graded practice homeworks week8: ? Due ?. Lateness penalty 0%.

Human graded lab assignment week8? Due ?. Lateness penalty 50%.

Week9 (Starting Mon 04 Mar 2024)

Topics (Tue and Thu): Medical error rates and population value estimates. Confidence intervals. Credibility intervals.

Read "National Post medical errors". In Course Materials Folder in course website. Go to canvas course website > modules > week9

Read "Confidence intervals" from ISI textbook Ch 3. Go to canvas course website > modules > week9

Relevant computer graded practice homeworks week9: ? Due ?. Lateness penalty 0%.

No human graded lab assignment

Supervised test2. Sign-up for day and time in canvas. Go to canvas course website > people > groups. Based on computer graded practice homeworks ? and human graded labs ?

Week 10 (Starting Mon 25 Mar 2024)

Topics (Tue and Thu): Population comparison studies

Read BBC News, "Athleticism increases disease risk". In Course Materials Folder in course website. Go to canvas course website > modules > week10

Read Scarmeas, "Athletes and ALS". In Course Materials Folder in course website. Go to canvas course website > modules > week10

Relevant computer graded practice homeworks week10: ? Due ?. Lateness penalty 0%.

Human graded lab assignment week10? Due ?. Lateness penalty 50%.

Week 11 (Starting Mon 01 Apr 2024)

Topics (Thu): Cause and effect studies

Read Morling Research Methods Psychology, ch3. In Course Materials Folder in course website. Go to canvas course website > modules > week12

Watch Roy, "Cause words". Go to canvas course website > media gallery.

Read Doing, "Causal inference 1A". Go to canvas course website > modules > week12.

Relevant computer graded practice homeworks week11: ? Due ?. Lateness penalty 0%.

Human graded lab assignment week11? Due ?. Lateness penalty 50%.

Week 12 (Starting Mon 08 Apr 2024)

Topics (Tue and Thu): Cause and effect studies

Read Morling Research Methods Psychology, ch10, ch11. In Course Materials Folder in course website. Go to canvas course website > modules > week12

Read Doing, "Causal inference 1A, 1B, 1C". Go to canvas course website > modules > week13.

Relevant computer graded practice homeworks week 12: ? Due ?. Lateness penalty 0%.

Human graded lab assignment week12? Due ?. Lateness penalty 50%.

Assignments (human graded and computer graded) submitted after Fri 12 Apr worth 0%.

Final exam period (Mon 15 Apr 2024 to Wed 26 Apr 2024)

Supervised test3. Sign-up for day and time in canvas. Go to canvas course website > people > groups. Based on computer graded practice homeworks ? and human graded labs weeks ?