

Ph.D. Comprehensive Examination in Epidemiology
An incomplete list of the knowledge base and resources for review

Study Topics

Epidemiology:

A broad understanding of the major diseases (worldwide, and within Canada) and their risk factors

Understanding of the main research interests and contributions of the faculty in the Division of Epidemiology

Definition and common uses/applications
Validity and Reliability

Direct and indirect standardization
Incidence
Prevalence
Mortality
Survival
PYLL

Odds ratios
Relative Risk, Rate Ratio, Risk Ratios
Hazard ratios
Comparisons of different ratio measures of association
Attributable Risk

Common sources of data (strengths/limitations)
Health status indicators

Causality Criteria and levels of evidence
Bradford-Hill
Sackett

Study Design, Measurement, & Related issues
Confounding
Interaction vs. Effect modification
Differential vs. Non differential misclassification
Sensitivity/Specificity/Predictive Value
Matching
Stratification

Screening
RCT/Clinical and Community-Based Trials
Ecological
Cross-Sectional
Cohort, Case-Control, Case Cohort, Nested Case-Control

Biostatistics:

Scales of measurement (e.g. nominal, ordinal)

Distributions

Probability

T-tests – one sample, two sample, one tailed vs. two tailed

Chi-squared tests

Correlation

Life tables and Kaplan-Meier

Regression (Linear, Logistic, Cox, Poisson) {assumptions, when to use, tests of significance}

GEE for clustered data

Hierarchical linear regression (mixed models)

Sample size

Study Guides**Textbooks in Epidemiology:**

Population Health: Concepts and Methods 2nd Ed. (Kue Young)

Epidemiology: An Introduction (Rothman)

Modern Epidemiology 3rd Ed. (Rothman, Greenland, Lash)

Methods in Observational Epidemiology 2nd Ed. (Kelsey)

Epidemiology 3rd Ed. (Gordis)

Theory-Based Data Analysis for the Social Sciences (Aneshensel)

Epidemiology Beyond the Basics 2nd Ed. (Szklo and Nieto)

Critical Appraisal of Epidemiological Studies and Clinical Trials 2nd Ed. (Elwood)

A Dictionary of Epidemiology 4th Ed. (Last)

Control of Communicable Diseases Manual 18th Ed. (Heymann)

Modern Infectious Disease Epidemiology 2nd Ed. 2002 (Johan Giesecke)

Textbooks in Statistics:**General:**

Introduction to the Practice of Statistics 4th Ed. (Moore and McCabe)

Fundamentals of Biostatistics 6th Ed. (Rosner)

Regression Methods in Biostatistics (Vittinghoff, Glidden, Shiboski, McCulloch)

Applied Statistics and the SAS Programming Language 5th Ed. (Cody and Smith)

Biostatistics: The Bare Essentials (Streiner)

Logistic Regression:

Logistic Regression: A Self-Learning Text 2nd Ed. (Kleinbaum and Klein)

Applied Logistic Regression 2nd Ed. (Hosmer and Lemeshow)

Logistic Regression Using SAS: Theory and Application (Allison)

Survival Analysis:

Survival Analysis using SAS: A Practical Guide (Allison)

Survival Analysis: A Self-Learning Text 2nd Ed. (Kleinbaum and Klein)

SEM:

A Step-by-Step Approach to Using SAS for Factor Analysis and Structural Equation Modeling (Hatcher)

Principles and Practice of Structural Equation Modeling 2nd Ed. (Kline)