

HLTH 2022 BIOSTATISTICS IN HEALTH

Credit Points 10

Legacy Code 401381

Coordinator John Bidewell ([https://directory.westernsydney.edu.au/search/name/John Bidewell/](https://directory.westernsydney.edu.au/search/name/John%20Bidewell/))

Description This unit introduces concepts and practice of biostatistics related to public health, healthcare policy and practice, and health science generally. Evidence-based health professionals must be able to interpret and act upon quantitative data from research about the health of individuals, communities and populations; and factors affecting health including determinants of health, and the effects of policies and interventions on the health of individuals and groups. The unit covers essential principles of statistical reasoning, assumptions and methods applied to health scenarios. Learning is achieved by students exploring available statistical information and through analysis of numerical data sets.

School Health Sciences

Student Contribution Band HECS Band 2 10cp

Check your HECS Band contribution amount via the Fees (https://www.westernsydney.edu.au/currentstudents/current_students/fees/) page.

Level Undergraduate Level 2 subject

Learning Outcomes

On successful completion of this subject, students should be able to:

1. Describe the importance and contribution of biostatistics to healthcare policy and practice.
2. Describe the structure of statistical software databases.
3. Explain the logic, assumptions and limitations of inferential statistics and hypothesis testing as they relate to health investigations.
4. Conduct valid descriptive and inferential analyses using statistical software.
5. Interpret and report the results of statistical analysis.

Subject Content

1. The importance and contribution of biostatistics to health policy and practice.
2. Structure of data sets in software used for statistical analysis.
3. Single-variable descriptive statistics for continuous and categorical data.
4. Descriptive statistics combining two or more categorical or continuous variables.
5. Descriptive measures of effect: differences, ratios and correlations.
6. Main effects and interactions in descriptive analyses with two or more variables.
7. Probability: normal and binomial distributions; standard scores and prediction.
8. From random sample to population: logic of statistical inference and hypothesis testing.
9. Sampling distributions, the standard error, z tests, t tests and confidence intervals.
10. Non-parametric inferential statistics: alternatives to t tests; chi-square for two categorical variables.
11. One-way analysis of variance.

12. Regression analysis.

13. Reporting statistical results: tables, graphs and expository prose; document preparation.

Assessment

The following table summarises the standard assessment tasks for this subject. Please note this is a guide only. Assessment tasks are regularly updated, where there is a difference your Learning Guide takes precedence.

Item	Length	Percent	Threshold	Individual/ Group Task
Quizzes	30 minutes per quiz	30	N	Individual
Descriptive statistical report	800 words total document	30	N	Individual
Statistical report	1200 words total document	40	N	Individual

Prescribed Texts

- Bowers, D. (2019). Medical statistics from scratch: An introduction for health professionals (4th ed.). John Wiley & Sons.

Teaching Periods

2022 Semester 2

Campbelltown

Day

Subject Contact John Bidewell ([https://directory.westernsydney.edu.au/search/name/John Bidewell/](https://directory.westernsydney.edu.au/search/name/John%20Bidewell/))

View timetable (https://classregistration.westernsydney.edu.au/even/timetable/?subject_code=HLTH2022_22-SPR_CA_D#subjects)

Online

Online

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View timetable (https://classregistration.westernsydney.edu.au/even/timetable/?subject_code=HLTH2022_22-SPR_ON_O#subjects)

2022 Trimester 3

Sydney City

Day

Subject Contact Andrey Zheluk ([https://directory.westernsydney.edu.au/search/name/Andrey Zheluk/](https://directory.westernsydney.edu.au/search/name/Andrey%20Zheluk/)) Andrey Zheluk ([https://directory.westernsydney.edu.au/search/name/Andrey Zheluk/](https://directory.westernsydney.edu.au/search/name/Andrey%20Zheluk/))

View timetable (https://classregistration.westernsydney.edu.au/even/timetable/?subject_code=HLTH2022_22-SC3_SC_D#subjects)