Biostatistics — M.S.

Program Directors

Khaled Bahjri
David Shavlik

The Master of Science (M.S.) degree in biostatistics is a two-year curriculum that emphasizes statistical methods, data analysis and computing; as well as some epidemiology methods. It is intended for health professionals and for other professionals who want to add biostatistics to their competencies. Another target group consists of persons with a quantitative background (engineering, mathematics, physics) who want to become statisticians. The M.S. degree in biostatistics also prepares students to pursue Ph.D. degrees in biostatistics and epidemiology. The degree trains persons for collaborative research endeavors across disciplines (health-care industry, insurance, and most other disciplines in which research and statistics are an integral part of the collaboration). A publishable format thesis is required. Students work with faculty as research associates during their training.

Learner outcomes

Upon completion of the M.S. degree curriculum in biostatistics, the graduate should be able to:

- Apply appropriate statistical theory and methods to the solution of applied statistical problems.
- Design and implement a research study, including formulating research questions, appropriate study designs, sample size, sampling scheme, data-collection methods, and analyses.
- Critically review literature relevant to statistical methods and interpretation of statistical findings, and identify strengths and weaknesses of design.
- Serve as statistical consultant and collaborator with health professionals on research projects, communicate the results of analyses, and write the statistical methods and results sections of a research paper.
- Select appropriate statistical methods to analyze data and establish and manage databases using current computer software (e.g., SAS, R, SPLUS, and SPSS).

Indicators of educational effectiveness

- Midterm and final examinations
- Thesis completion
- Written and oral presentation and defense of thesis
- Course evaluation

Prerequisite

- Calculus (one course)
- Linear algebra (one course)
- Probability and statistics (two courses)

Degree requirements

Public Health		
PHCJ 605	Overview of Public Health	1
Major		
EPDM 509	Principles of Epidemiology	3
EPDM 510	Epidemiologic Methods I	3
EPDM 515	Clinical Trials	3
STAT 521	Biostatistics I	4
STAT 522	Biostatistics II	4
STAT 523	Biostatistics III	4
STAT 525	Applied Multivariate Analysis	3
STAT 535	Modern Nonparametric Statistics	3
STAT 545	Survival Analysis	3
STAT 548	Analytical Applications of SAS	2
STAT 557	Research Data Management	3
STAT 564	Survey and Advanced Research Methods	3
STAT 569	Advanced Data Analysis	3
STAT 594	Statistical Consulting	2
Religion		
RELE 534	Ethical Issues in Public Health (or REL_)	3
Thesis		
STAT 695	Thesis	4
Total Units		51

Non-course requirements

EPDM/STAT forums

During their program, students are required to attend a minimum of fifteen forums in Epidemiology, Biostatistics, and/or in the Adventist Health Study.

Culminating activity

The culminating activity includes a research thesis, with a written publishable paper and oral presentation; professional portfolio; and an exit interview with the program director.

Normal time to complete the program

1.66 years (6 academic quarters) based on full-time enrollment; part time permitted