

BIOSTATISTICS, M.P.H.

If you like collecting and analyzing health information, forecasting scenarios and making important health, economic or policy recommendations, a highly applied program like Saint Louis University's Master of Public Health concentration in biostatistics may be ideal for you.

Biostatisticians apply statistical theory and mathematical principles to research in public health, medicine, pharmacology, biology, environmental science, and other related fields aimed at determining the causes of disease and injuries and to identify critical trends within communities.

Program Highlights

SLU's strong job placement rates for its Master of Public Health graduates are based largely on its competencies-based training, collaborative faculty and team-based learning experience. If you concentrate your public health studies in biostatistics, you will be able to:

- Articulate the principles of biostatistics
- Compute descriptive and multivariate statistical tests and measures of association using statistical software
- Interpret results of statistical analyses
- Communicate results of statistical analyses
- Follow ethical norms and rules for acquiring, managing, sharing, securing and analyzing data

Curriculum Overview

Learn to apply statistical theory and mathematical principles to research in public health, medicine, pharmacology, biology, environmental science and other related fields aimed at determining the causes of disease and injuries and to identifying critical trends within communities. Students in SLU's M.P.H. biostatistics concentration develop the skills to collect and analyze health-related data, forecast various scenarios and make important policy recommendations.

An available joint concentration in biostatistics and epidemiology requires just six additional credit hours and can still be completed in two years. In a data-driven economy, this joint concentration provides additional skills that future employers will value and the flexibility to do more with your career.

Fieldwork and Research Opportunities

SLU's M.P.H. program is designed to give students the practical skills needed for any public health career. Over 50% of M.P.H. students work on research projects with faculty outside of a class requirement.

Saint Louis University's biostatistics faculty research:

- Bayesian statistics
- Categorical data analysis
- Functional data analysis
- GIS and spatial analysis
- Latent structure modeling
- Longitudinal data analysis
- Statistical quality control
- Survival data analysis

All Master of Public Health students at SLU complete an internship after their first year of study to gain practical experience in their chosen career path. Students have interned in a variety of settings from local nonprofits to academic research centers, state and federal agencies, and multilateral institutions. Students work with the M.P.H. internship coordinator and their faculty advisor to identify an appropriate internship in St. Louis, nationally, or across the globe.

Careers

As a biostatistician, you have opportunities to work in government, industry, and academia. Your research and analysis may include:

- Analyzing risk factors for different chronic and infectious diseases.
- Analyzing the effectiveness of new drugs.
- Communicating and explaining scientific discoveries.
- Determining trends in drunken or distracted driving injuries.
- Planning effective health care interventions and strategies for government, health care systems, and NGOs.

SLU's public health graduates are employed at federal, state and local health agencies; consulting firms; consumer advocacy organizations; community-based organizations and health care centers; hospitals; research centers; and universities.

Within the first year of graduation, the vast majority of SLU's M.P.H. graduates are beginning their careers, participating in fellowships or furthering their graduate education.

Scholarships and Financial Aid

The College for Public Health and Social Justice offers several ways to help finance graduate education. Opportunities include a limited number of merit-based scholarships and graduate research assistantships.

Awards are made to applicants with the highest combinations of GPAs and test scores who complete their applications by the priority deadlines.

For more information, visit the student financial services office online at <http://finaid.slu.edu> (<http://finaid.slu.edu/>).

Accreditation

The College for Public Health and Social Justice is fully accredited by the Council on Education for Public Health (CEPH).

View a PDF of the Most Recent CEPH Self-Study (July 2016) (http://www.slu.edu/public-health-social-justice/pdfs/cphsj_self_study_august_2015_report.pdf)

Learning Outcomes

Evidence-based Approaches to Public Health

- Graduates will be able to apply epidemiological methods to the breadth of settings and situations in public health practice.
- Graduates will be able to select quantitative and qualitative data collection methods appropriate for a given public health context.
- Graduates will be able to analyze quantitative and qualitative data using biostatistics, informatics, computer-based programming and software, as appropriate.
- Graduates will be able to interpret results of data analysis for public health research, policy or practice.

Public Health and Health Care Systems

- Graduates will be able to compare the organization, structure and function of health care, public health and regulatory systems across national and international settings.
- Graduates will be able to discuss the means by which structural bias, social inequities and racism undermine health and create challenges to achieving health equity at organizational, community and societal levels.

Planning and Management to Promote Health

- Graduates will be able to assess population needs, assets and capacities that affect communities' health.
- Graduates will be able to apply awareness of cultural values and practices to the design or implementation of public health policies or programs.
- Graduates will be able to design a population-based policy, program, project or intervention.
- Graduates will be able to explain basic principles and tools of budget and resource management.
- Graduates will be able to select methods to evaluate public health programs.

Policy in Public Health

- Graduates will be able to discuss multiple dimensions of the policy-making process, including the roles of ethics and evidence.
- Graduates will be able to propose strategies to identify stakeholders and build coalitions and partnerships for influencing public health outcomes.
- Graduates will be able to advocate for political, social or economic policies and programs that will improve health in diverse populations.
- Graduates will be able to evaluate policies for their impact on public health and health equity.

Leadership

- Graduates will be able to apply principles of leadership, governance and management, which include creating a vision, empowering others, fostering collaboration and guiding decision making.
- Graduates will be able to apply negotiation and mediation skills to address organizational or community.

Communication

- Graduates will be able to select communication strategies for different audiences and sectors.
- Graduates will be able to communicate audience-appropriate public health content, both in writing and through oral presentation.
- Graduates will be able to describe the importance of cultural competence in communicating public health content.

Interprofessional Practice

- Graduates will be able to perform effectively on interprofessional teams.

Systems Thinking

- Graduates will be able to apply systems thinking tools to a public health issue.

Requirements

Admission Requirements

Applicants should have a bachelor's degree from a mathematical, biological, or social science background with prior coursework that

includes Calculus I and an introductory statistics class, preferably with a 3.00 grade point average.

Application Deadline

Applications are accepted on a rolling basis until classes are full. Apply using the centralized application service S (<https://sophas.org/>)OPHAS (<https://sophas.liaisoncas.com/applicant-ux/#/deeplink/programSearch/organization/6425937835738032128>).

Review Process

All applicants are considered using a holistic application review process, including in-person, phone or Zoom interviews with faculty members in their intended concentration areas.

Application Requirements

- Application form and fee
- Transcript(s)
- Three letters of recommendation
- Résumé/curriculum vitae
- Professional goal statement

Apply using the centralized application service SOPHAS (<https://sophas.liaisoncas.com/applicant-ux/#/deeplink/programSearch/organization/6425937835738032128>).

Requirements for International Students

All admission policies and requirements for domestic students apply to international students. International students must also meet the following additional requirements:

- Demonstrate English Language Proficiency
- Financial documents are required to complete an application for admission and be reviewed for admission and merit scholarships.
- Proof of financial support that must include:
 - A letter of financial support from the person(s) or sponsoring agency funding the student's time at Saint Louis University
 - A letter from the sponsor's bank verifying that the funds are available and will be so for the duration of the student's study at the University
- Academic records, in English translation, of students who have undertaken postsecondary studies outside the United States must include:
 - Courses taken and/or lectures attended
 - Practical laboratory work
 - The maximum and minimum grades attainable
 - The grades earned or the results of all end-of-term examinations
 - Any honors or degrees received.

WES and ECE transcripts are accepted.

Program Requirements

Code	Title	Credits
Required Core Courses		
BST 5020	Theory of Biostatistics	3
HCE 5020	Ethical Issues in Public Health	3
PUBH 5010	Mission and Practice of Global Public Health	2
PUBH 5030	Methodological Approaches to Understanding Population Health	3

PUBH 5050	Health Care Across the Life Course: From Policy to Practice	3
PUBH 5060	Environmental and Biological Determinants of Health	3
PUBH 5070	Translating Evidence and Theory for Community Practice	3
PUBH 5910	Practice Experience in Public Health	1
PUBH 5950	Special Study for Examinations	0
PUBH 5960	Capstone in Public Health Practice	3

Concentrations		
Select one of the following:		
Biostatistics (p. 3)		24
Biostatistics / Epidemiology Joint (p. 3)		30
Total Credits		48-54

Biostatistics Concentration

PUBH 5040 Generating Evidence from Public Health Data (3 cr) may not contribute credits toward total degree requirements

Code	Title	Credits
Required core courses listed above and the following:		
BST 5030	Statistical Programming and Study Planning: SAS	3
BST 5100	Introduction to General Linear Modeling	3
BST 5200	Survival Data Analysis	3
BST 5210	Categorical Data Analysis	3
BST 5400	Applied Data Management	3
EPI 5020	Epidemiology Methods II	3
Elective	Elective chosen in consultation with mentor	6
Total Credits		24

Biostatistics / Epidemiology Joint Concentration

PUBH 5040 Generating Evidence from Public Health Data (3 cr) may not contribute credits toward total degree requirements

Code	Title	Credits
Required core courses listed above and the following:		
BST 5100	Introduction to General Linear Modeling	3
BST 5030	Statistical Programming and Study Planning: SAS	3
BST 5200	Survival Data Analysis	3
BST 5210	Categorical Data Analysis	3
BST 5400	Applied Data Management	3
EPI 5020	Epidemiology Methods II	3
Elective	Elective chosen in consultation with mentor	12
Total Credits		30

Continuation Standards

Students must maintain a cumulative grade point average (GPA) of 3.00 in all graduate/professional courses.

Roadmap

Roadmaps are recommended semester-by-semester plans of study for programs and assume full-time enrollment unless otherwise noted.

Courses and milestones designated as critical (marked with !) must be completed in the semester listed to ensure a timely graduation. Transfer credit may change the roadmap.

This roadmap should not be used in the place of regular academic advising appointments. All students are encouraged to meet with their advisor/mentor each semester. Requirements, course availability and sequencing are subject to change.

Biostatistics Concentration

Course	Title	Credits
Year One		
Fall		
BST 5100	Introduction to General Linear Modeling	3
BST 5020	Theory of Biostatistics	3
PUBH 5010	Mission and Practice of Global Public Health	2
PUBH 5030	Methodological Approaches to Understanding Population Health	3
MPH Professional Development Series: Completion of 6 sessions required during Year 1 (prerequisite for PUBH 5910).		
Credits		11
Spring		
BST 5030	Statistical Programming and Study Planning: SAS	3
EPI 5020	Epidemiology Methods II	3
PUBH 5060	Environmental and Biological Determinants of Health	3
PUBH 5070	Translating Evidence and Theory for Community Practice	3
MPH Professional Development Series: Completion of 6 sessions required during Year 1 (prerequisite for PUBH 5910).		
Credits		12
Summer		
PUBH 5910	Practice Experience in Public Health	1
Credits		1
Year Two		
Fall		
BST 5200	Survival Data Analysis	3
BST 5210	Categorical Data Analysis	3
BST 5400	Applied Data Management	3
Elective	BST Elective chosen in consultation with mentor	3
Credits		12
Spring		
HCE 5020	Ethical Issues in Public Health	3
PUBH 5050	Health Care Across the Life Course: From Policy to Practice	3
PUBH 5950	Special Study for Examinations	0
PUBH 5960	Capstone in Public Health Practice	3
Elective	BST Elective chosen in consultation with mentor	3
Credits		12
Total Credits		48

Biostatistics Concentration (part-time)

Course	Title	Credits
Year One		
Fall		
BST 5020	Theory of Biostatistics	3
PUBH 5030	Methodological Approaches to Understanding Population Health	3
MPH Professional Development Series: Completion of 6 sessions required during Year 1 or 2 (prerequisite for PUBH 5910).		
Credits		6
Spring		
BST 5100	Introduction to General Linear Modeling	3
EPI 5020	Epidemiology Methods II	3
MPH Professional Development Series: Completion of 6 sessions required during Year 1 or 2 (prerequisite for PUBH 5910).		
Credits		6
Summer		
PUBH 5010	Mission and Practice of Global Public Health	2
Elective	BST Elective chosen in consultation with mentor	3
Credits		5
Year Two		
Fall		
BST 5400	Applied Data Management	3
PUBH 5060	Environmental and Biological Determinants of Health	3
Credits		6
Spring		
BST 5030	Statistical Programming and Study Planning: SAS	3
PUBH 5070	Translating Evidence and Theory for Community Practice	3
Credits		6
Summer		
HCE 5020	Ethical Issues in Public Health	3
Elective	BST Elective chosen in consultation with mentor	3
Credits		6
Year Three		
Fall		
BST 5200	Survival Data Analysis	3
BST 5210	Categorical Data Analysis	3
Credits		6
Spring		
PUBH 5050	Health Care Across the Life Course: From Policy to Practice	3
PUBH 5950	Special Study for Examinations	0
PUBH 5960	Capstone in Public Health Practice	3
Credits		6

Summer

PUBH 5910	Practice Experience in Public Health	1
Credits		1
Total Credits		48

Biostatistics / Epidemiology Joint Concentration

Course	Title	Credits
Year One		
Fall		
BST 5100	Introduction to General Linear Modeling	3
BST 5020	Theory of Biostatistics	3
PUBH 5010	Mission and Practice of Global Public Health	2
PUBH 5030	Methodological Approaches to Understanding Population Health	3
MPH Professional Development Series: Completion of 6 sessions required during Year 1 (prerequisite for PUBH 5910).		
Credits		11
Spring		
BST 5030	Statistical Programming and Study Planning: SAS	3
EPI 5020	Epidemiology Methods II	3
PUBH 5060	Environmental and Biological Determinants of Health	3
PUBH 5070	Translating Evidence and Theory for Community Practice	3
MPH Professional Development Series: Completion of 6 sessions required during Year 1 (prerequisite for PUBH 5910).		
Credits		12
Summer		
PUBH 5910	Practice Experience in Public Health	1
HCE 5020	Ethical Issues in Public Health	3
Credits		4
Year Two		
Fall		
BST 5200	Survival Data Analysis	3
BST 5210	Categorical Data Analysis	3
BST 5400	Applied Data Management	3
PUBH 5050	Health Care Across the Life Course: From Policy to Practice	3
Elective	EPI Elective chosen in consultation with mentor	3
Credits		15
Spring		
PUBH 5950	Special Study for Examinations	0
PUBH 5960	Capstone in Public Health Practice	3
Elective	EPI Elective chosen in consultation with mentor	3
Elective	BST Elective chosen in consultation with mentor	3

Elective	BST Elective chosen in consultation with mentor	3
Credits		12
Total Credits		54

Contact Us

Apply for Admission (<https://sophas.liaisoncas.com/applicant-ux/#/deeplink/programSearch/organization/6425937835738032128>)

For additional admission questions, please contact:

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