BIOSTATISTICS, B.S.

Student Handbook (https://sites.google.com/slu.edu/mycphsj-intranet/home/undergraduate-students/academic-resources/?authuser=1)

Saint Louis University's Bachelor of Science in Biostatistics degree is offered through the College for Public Health and Social Justice (https://www.slu.edu/public-health-social-justice/), which is accredited by the Council on Education for Public Health. Using the American Statistical Association's guidelines for undergraduate data science programs, the curriculum trains students in the management, analysis and interpretation of data within the context of public health and health care. Students gain skills that prepare them to enter the workforce or pursue graduate school after graduation.

What is the Field of Biostatistics?

Biostatistics is a major for students interested in using data to understand and address questions about health and wellness. Biostatisticians use analytic skills and critical thinking to work with data and answer questions currently challenging public health and health care today, such as:

- How do we predict the emergence of new infectious diseases?
- How do neighborhood environments impact chronic disease?
- How can medical records and insurance data be used to better understand the burden, prevention and control of health outcomes in our populations?
- How can genomic data be used to understand the role of genetics in the risk, treatment and prognosis of disease?

Why Study Biostatistics?

- **Interdisciplinary study.** Students explore principles of mathematics, computer programming, statistics and public health as they learn how the field of biostatistics addresses current and emerging public health issues.
- **Community impact.** Biostatisticians collaborate with researchers, clinicians, policymakers, health care administrators and communities as they manage, analyze and interpret data to inform critical health decisions.
- **Employment outlook.** Biostatistics students gain skills that make them marketable for diverse, competitive-paying STEM jobs such as data analysts, data managers and research associates.
- **The Jesuit difference.** Saint Louis University is one of the few universities to offer an undergraduate degree in biostatistics and the only Catholic, Jesuit University to offer this program.
- **Medallion Program.** Designed for first-year students in all CPHSJ majors, this program connects first-year students with each other, their major and the College through social, academic enhancement and professional development events, as well as faculty mentoring.

Curriculum Overview

SLU's biostatistics curriculum contains 30 credits of major courses that cover topics in public health and biostatistics, such as statistical computing, data management, applied biostatistics, epidemiology and evidence-based public health.

The Biostatistics major coursework uses a health context to emphasize the development of skills in data management and analysis, preparing students to enter the workforce or attend graduate school after college.

The remainder of the 120 credits required for graduation include prerequisites to major courses (Calculus I, II, and III), the University Core (https://www.slu.edu/core/) curriculum and general electives. Many students use their elective courses to pursue second majors, a minor and/or premedical requirements.

Additional degree options for students pursuing a biostatistics major at SLU include:

- Two accelerated programs for students who wish to earn a B.S. in Biostatistics in four years and either a Master of Science in Health Data Science (https://catalog.slu.edu/colleges-schools/medicine/health-outcomes-research/health-data-science-ms/) or a Master of Science in Biostatistics and Health Analytics (https://catalog.slu.edu/colleges-schools/public-health-social-justice/graduate-programs/biostatistics-health-analytics-ms/) (with a traditional or geospatial concentration) with one additional year of study; students apply to these programs during their fifth semester of study.
- A pre-med track for students interested in going to medical school and a medical scholars track for students in the Medical Scholars Program (https://www.slu.edu/scholars/medical-scholars/).
- Honors courses for students in the Honors Program (https://www.slu.edu/honors/).

Fieldwork and Research Opportunities

Saint Louis University has a strong field experience component. Students can embody the institution's Jesuit mission (https://www.slu.edu/about/catholic-jesuit-identity/) by using the knowledge they gain in the classroom to serve others. Service-learning and field exposure opportunities provide valuable field experience and help biostatistics students connect with the St. Louis community and the global community.

Students can volunteer with health care providers and agencies that serve under-resourced communities, assist faculty with research projects and apply to national internships and summer programs in data science. Internships can be completed on a volunteer basis or for general elective academic credit. Students can also become members of a variety of student organizations on campus to get to know other biostatistics students and engage in additional service, networking and leadership opportunities.

Careers

The 21st century is often referred to as the era of information or big data. Skilled biostatisticians are needed to manage and analyze these data to better understand and address global public health issues.

Biostatisticians look forward to careers in healthcare, government, industry, the nonprofit sector and academia. Job examples include data analysts, data managers, database administrators, and biostatisticians. The job outlook is excellent, as the U.S. government has reported a shortage of biostatistics professionals. The U.S. Bureau of Labor reports that job growth for biostatisticians is increasing more quickly than the national average.

Admission Requirements

Begin Your Application (http://www.slu.edu/apply.php)

Saint Louis University also accepts the Common Application.

Freshman

All applications are thoroughly reviewed with the highest degree of individual care and consideration to all credentials that are submitted. Solid academic performance in college preparatory coursework is a primary concern in reviewing a freshman applicant's file.

To be considered for admission to any Saint Louis University undergraduate program, applicants must be graduating from an accredited high school, have an acceptable HiSET exam score or take the General Education Development (GED) test.

Transfer

Applicants must be a graduate of an accredited high school or have an acceptable score on the GED.

Students who have attempted fewer than 24 semester credits (or 30 quarter credits) of college credit must follow the above freshmen admission requirements. Students who have completed 24 or more semester credits (or 30 quarter credits) of college credit must submit transcripts from all previously attended college(s).

In reviewing a transfer applicant's file, the Office of Admission holistically examines the student's academic performance in college-level coursework as an indicator of the student's ability to meet the academic rigors of Saint Louis University. Where applicable, transfer students will be evaluated on any courses outlined in the continuation standards of their preferred major.

International Applicants

All admission policies and requirements for domestic students apply to international students along with the following:

- Demonstrate English Language Proficiency (https://catalog.slu.edu/academic-policies/office-admission/undergraduate/english-language-proficiency/)
- Proof of financial support must include:
  - A letter of financial support from the person(s) or sponsoring agency funding the 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 study at the University
- Academic records, in English translation, of students who have undertaken postsecondary studies outside the United States must include the 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, and any honors or degrees received. WES and ECE transcripts are accepted.

Tuition

Tuition	Cost Per Year
Undergraduate Tuition	$52,260

Additional charges may apply. Other resources are listed below:

Net Price Calculator (https://www.slu.edu/financial-aid/tuition-and-costs/calculator.php)

Information on Tuition and Fees (https://catalog.slu.edu/academic-policies/student-financial-services/tuition/)

Miscellaneous Fees (https://catalog.slu.edu/academic-policies/student-financial-services/fees/)

Information on Summer Tuition (https://catalog.slu.edu/academic-policies/student-financial-services/tuition-summer/)

Scholarships and Financial Aid

There are two principal ways to help finance a Saint Louis University education:

- **Scholarships:** Scholarships are awarded based on academic achievement, service, leadership and financial need.
- **Financial Aid:** Financial aid is provided through grants and loans, some of which require repayment.

Saint Louis University makes every effort to keep our education affordable. In fiscal year 2022, 99% of first-time freshmen and 90% of all students received financial aid (https://www.slu.edu/financial-aid/) and students received more than $445 million in aid University-wide.

For priority consideration for merit-based scholarships, apply for admission by December 1 and complete a Free Application for Federal Student Aid (FAFSA) by March 1.

For information on other scholarships and financial aid, visit www.slu.edu/financial-aid (https://www.slu.edu/financial-aid/).

Accreditation

Saint Louis University's College for Public Health and Social Justice is fully accredited by the Council on Education for Public Health (CEPH). To see our most recent accreditation documentation, please visit the College for Public Health and Social Justice website (https://www.slu.edu/public-health-social-justice/). (https://www.slu.edu/public-health-social-justice/about/accreditation.php)

Learning Outcomes

1. Graduates will be able to perform computations, derivations and calculations as they relate to calculus and linear algebra.
2. Graduates will be able to use standard statistical software to create and manage datasets and perform basic statistical tests.
3. Graduates will be able to appropriately communicate statistical results.
4. Graduates will be able to apply the public health model to biostatistical work.

Requirements

Code	Title	Credits
University Undergraduate Core (https://catalog.slu.edu/academic-policies/academic-policies-procedures/university-core/)		**32-35**
Prerequisites for Major Courses		
MATH 1510	Calculus I	4
MATH 1520	Calculus II	4
MATH 2530	Calculus III	4
Required Biostatistics Major Courses		
BST 3000	Intro to Statistical Computing	3
BST 3100	Applied Biostatistics I	3

BST 3200	Applied Biostatistics II	3
BST 4100	Theory of Biostatistics I	3
BST 4200	Theory of Biostatistics II	3
BST 4400	Introduction to Applied Data Management	3
EPI 4000	Intro Epidemiology: Foundations & Practice	3
PUBH 2100	Introduction to Global Health ‡	3
PUBH 3200	Evidence Based Public Health	3
PUBH 4100	Biological Basis of Public Health	3
General Elective Courses		**43-46**
Select an additional number of general electives to achieve the total minimum 120 credits for graduation.		
Total Credits		**120**

‡ Fulfills the cultural diversity core requirement.

Continuation Standards

- Cumulative GPA of at least 2.00
- Minimum grade of C in all B.S. in Biostatistics major courses
- Minimum grade of C- in all major pre-requisite courses
- Minimum grade of D in all core courses
- Minimum grade of D in all remaining general elective courses counting toward the minimum 120 credits required for graduation

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.

General Track

Course	Title	Credits
Year One		
Fall		
CORE 1000	Ignite First Year Seminar	2-3
CORE 1500	Cura Personalis 1: Self in Community	1
CORE 1900	Eloquentia Perfecta 1: Written and Visual Communication	3
MATH 1510	Calculus I	4
PUBH 2100	Introduction to Global Health	3
General Elective		3
	Credits	**16-17**
Spring		
BST 3000	Intro to Statistical Computing	3
CORE 1600	Ultimate Questions: Theology	3
MATH 1520	Calculus II	4
General Elective		3
General Elective		3
	Credits	**16**
Year Two		
Fall		
BST 3100	Applied Biostatistics I	3
CORE 1200	Eloquentia Perfecta 2: Oral and Visual Communication	3
CORE 1700	Ultimate Questions: Philosophy	3
MATH 2530	Calculus III	4
General Elective: Dignity, Ethics & a Just Society		3
	Credits	**16**
Spring		
BST 3200	Applied Biostatistics II	3
CORE 2500	Cura Personalis 2: Self in Contemplation	0
EPI 4000	Intro Epidemiology: Foundations & Practice	3
General Elective: Global Interdependence		3
General Elective: Identities in Context Attribute		3
General Elective		3
	Credits	**15**
Year Three		
Fall		
BST 4100	Theory of Biostatistics I	3
CORE 2800	Eloquentia Perfecta 3: Creative Expression	2-3
CORE 3400	Ways of Thinking: Aesthetics, History, and Culture	3
PUBH 3200	Evidence Based Public Health	3
PUBH 4100	Biological Basis of Public Health	3
	Credits	**14-15**
Spring		
BST 4200	Theory of Biostatistics II	3
CORE 3600	Ways of Thinking: Social and Behavioral Sciences	3
CORE 4000	Collaborative Inquiry	2-3
General Elective: Writing Intensive		3
General Elective: Reflection in Action Attribute		3
	Credits	**14-15**
Year Four		
Fall		
BST 4400	Introduction to Applied Data Management	3
CORE 3500	Cura Personalis 3: Self in the World	1
General Elective		3
General Elective		3
General Elective		3
General Elective		1-3
	Credits	**14-16**
Spring		
BST 4200	Theory of Biostatistics II	3
General Elective		3
General Elective		3
General Elective		3

General Elective	3
Credits	**15**
Total Credits	**120-125**

‡ Fulfills the cultural diversity core requirement.

Pre-Medical and Medical Scholars Students must consult with their academic advisor, and with SLU's Office of Pre-Health and Pre-Law Studies (https://www.slu.edu/academics/undergraduate/pre-health-pre-law/) to ensure the proper pre-medical course registrations.

Program Notes

Minimum of 120 credits including requirements listed above and cumulative GPA of at least 2.00 to graduate and/or remain in good standing with the program.

Contact Us

Apply for Admission (http://www.slu.edu/admission/)

For additional questions about undergraduate admission, please contact:
Katie Linnenbrink
Administrative Assistant
Tegeler Hall 300 West
314-977-3934
katie.linnenbrink@slu.edu

2+SLU

2+SLU programs are formal transfer agreements for students seeking an associate degree at a partner institution.

- Biostatistics, B.S. (STLCC 2+SLU) (https://catalog.slu.edu/academic-policies/office-admission/undergraduate/2plusslu/stlcc/biostatistics/)