Biostatistical Applications Graduate Certificate

The Biostatistical Applications Graduate Certificate is awarded to those who have demonstrated specialized knowledge in a scientific field, but not to the level required by a postgraduate master's degree. The Biostatistical Applications Graduate Certificate requires individuals to acquire sufficient knowledge and expertise to permit them to work at the frontier of their field by:

1. becoming familiar with biostatistical methods in research, business and industry.
2. becoming excellent consumers of the literature where biostatistical applications are utilized.
3. applying many of the common biostatistical methods to compliment his or her everyday job duties. Course work in this proposal is designed with this purpose in mind.

Upon completion of the Biostatistical Applications Graduate Certificate, the student should be prepared to apply many of the common biostatistical methods to compliment his or her every day job duties. Therefore, the student must have a basic understanding of biostatistical practice and should be proficient in the application of common biostatistical methods to one or more areas application. Upon completion of the Biostatistical Applications Graduate Certificate program, the student should be able to:

1. demonstrate a basic knowledge and understanding of the applications of some of the more common biostatistical methods.
2. function as a collaborator on a research team.
3. critically evaluate the literature where biostatistical applications are used.
4. participate in the implementation of a research project.
5. serve as an advocate for proper biostatistical application and interpretation of results in his or her field.

The application for the Biostatistical Applications Graduate Certificate is an online process. Detailed instructions on how to apply are posted on the Department of Biostatistics & Data Science (https://www.kumc.edu/school-of-medicine/academics/departments/biostatistics-and-data-science/academics/graduate-certificates/biostatistical-applications-graduate-certificate/admissions.html) website.

Admission Requirements:

- A bachelor's degree from a regionally accredited institution documented by submission of an official transcript indicating the degree has been conferred before entering the program. Official transcripts from institutions attended post-baccalaureate are also required.
  - Students with degrees from outside the U.S. may be subject to transcript evaluation indicating the degree is equivalent to a U.S. degree and meets the minimum cumulative GPA requirements.
- A cumulative grade-point average (GPA) of at least a 3.0 on a 4.0 scale for the bachelor's degree.

- Applicants who are not native speakers of English, whether domestic or international, must demonstrate they meet the Minimum English Proficiency Requirement (https://www.kumc.edu/academic-and-student-affairs/departments/office-of-international-programs/inbound-programs/information-for-students/academic-english-requirements.html).
- A background check (https://www.kumc.edu/academic-and-student-affairs/student-resources/criminal-background-checks-for-students.html) is required during the admission process; it may affect the student's eligibility to enter the program.
- A letter grade of B or better in calculus I (or equivalent), or a quantitative GRE score in the 70th percentile or higher.
- A letter grade B or better in a graduate-level introductory statistics course (e.g., BIOS 717 Fundamentals of Biostatistics II or equivalent.)

  Note: Students not meeting this requirement may fulfill the requirement with completion of BIOS 717.

- Students currently enrolled in graduate programs at KUMC or KU must be in good standing (3.0 or higher GPA) and have a letter of approval from their current graduate program director and/or department chair indicating support to enroll in the certificate program.

Applicants will be assessed based on these requirements.

Admission requirements are subject to change. In most cases, use the catalog of the year student entered the program. *Other years' catalogs»*.

Certificate Program Information: (https://catalog.ku.edu/graduate-studies/kumc/#certificatestext)

No student may work toward a graduate certificate without being accepted as a graduate certificate student in a specific graduate certificate program. Graduate certificates are not granted retroactively. An individual who is not currently a degree-seeking graduate student at KU must apply and may be admitted directly to a graduate certificate program.

The graduate certificate program is not a means of entry into a graduate degree program. If students admitted to a graduate certificate program are later admitted to a graduate degree program as degree-seeking, applicable courses taken for the graduate certificate program may, upon recommendation of the department and within general guidelines, be approved by the Office of Graduate Studies to be counted toward the degree.

While the courses comprising a graduate certificate may be used as evidence in support of a student's application for admission to a graduate degree program, the certificate itself is not considered to be a prerequisite and does not guarantee admission into any graduate degree program. The certificate program is not intended to serve as a default system for students in a degree program who find that they are not able to complete the degree for academic or other reasons. Should a student drop out of a degree program and seek admission to a certificate program, all certificate admission requirements must be followed for admission and conferral.

The Biostatistical Applications Graduate Certificate requirements vary depending on whether the certificate student is currently seeking a post-graduate degree at any of the KU campuses or not. The certificate program consists of a minimum of 12 credit hours of coursework in biostatistical applications.

Certificate requirements:

- Certificate requirements are normally completed within one (1) year of admission to the program although a maximum of 4 years is allowed.
- Cumulative grade-point average (GPA) of at least a 3.0 for all KU graduate certificate coursework.
- Enrollment in a minimum of one (1) credit hour the semester program is completed. Graduate certificates may not be granted retroactively.
- Completion of a minimum of 12 credit hours. Note: A prolonged plan of study will occur for students without the prerequisite graduate-level introductory statistics course prior to enrolling in the certificate program (see Admissions (http://catalog.ku.edu/medicine/biostatistics/statappgradcert/#admissionstext).)
- Current KU post-graduate students must complete four (4) courses from the following list:

Code	Title	Hours
BIOS 715	Introduction to Data Management using RedCap and SAS	3
BIOS 720	Analysis of Variance	3
BIOS 725	Applied Nonparametric Statistics	3
BIOS 730	Applied Linear Regression	3
BIOS 735	Categorical Data and Survival Analysis	3
BIOS 740	Applied Multivariate Methods	3
BIOS 799	Introduction to Statistical Genomics	3

- Certificate students not currently seeking a KU post-graduate degree must complete the following two (2) courses:

Code	Title	Hours
BIOS 720	Analysis of Variance	3
BIOS 730	Applied Linear Regression	3

- Certificate students not currently seeking a KU post-graduate degree must complete two (2) elective courses from the following list:

Code	Title	Hours
BIOS 715	Introduction to Data Management using RedCap and SAS	3
BIOS 725	Applied Nonparametric Statistics	3
BIOS 735	Categorical Data and Survival Analysis	3
BIOS 740	Applied Multivariate Methods	3
BIOS 799	Introduction to Statistical Genomics	3

Graduate credit from another institution may not be transferred to a graduate certificate program.

Certificate requirements and course descriptions are subject to change. Any courses taken as an equivalent must be approved by the Graduate Director and the Office of Graduate Studies. In most cases, use the catalog of the year student entered the program. *Other years' catalogs».*

Typical Plan of Study - for current KU post-graduate student

Year 1

Fall	Hours	Spring	Hours
Choose two courses from the following list:	6	Choose two courses from the following list:	6
BIOS 715		BIOS 720	
BIOS 730		BIOS 725	
BIOS 735		BIOS 740	
BIOS 799			
	6		6

Total Hours 12

Typical Plan of Study - for students not currently seeking a KU post-graduate degree

Year 1

Fall	Hours	Spring	Hours
BIOS 730 (required course)	3	BIOS 720 (required course)	3
Choose one course from the following list:	3	Choose one course from the following list:	3
BIOS 715 (elective course)		BIOS 725 (elective course)	
BIOS 735 (elective course)		BIOS 740 (elective course)	
BIOS 799 (elective course)			
	6		6

Total Hours 12

Because the Graduate Certificates in Biostatistics, Biostatistical Applications, Applied Statistics, Applied Data Science, and Health Data Science signify that the holder is prepared for entry into the practice of biostatistics research, it follows that students awarded the Graduate Certificates must have the knowledge and skills necessary to function in a broad range of academic and research situations. The **Technical Standards** include those physical, cognitive and behavioral standards that are required for the satisfactory completion of all aspects of the curriculum and the development of professional attributes required by all students at upon completion of the Graduate Certificate. The following abilities and expectations must be met by all students **with or without accommodations** admitted to the Certificates:

1. **Observation.** A student must be able to observe and evaluate class demonstrations and field experiences relevant to the field of statistics. He or she must be able to read and comprehend text, numbers, tables and graphs, both in print and displayed electronically. Observation necessitates the functional use of the senses of vision and hearing.

2. **Communication.** A student must be able to communicate effectively and efficiently in English in oral, written, and electronic form with other students, faculty, staff, researchers, and the public. Effective communication includes: the ability to understand assigned readings, lectures, and technical and professional materials; the ability to analyze information; the ability to present results of such analyses verbally and in writing; the ability to independently prepare papers and presentations; and the ability to follow verbal and written instructions. Use of computers and other technology is imperative to this communication.

3. **Motor.** A student must have sufficient motor function to attend classes, prepare assignments, use electronic media, and deliver lectures and public presentations. Class requirements may also include work in a variety of collaborative environments.

4. **Intellectual, conceptual, integrative and quantitative abilities.** A student must possess the ability to understand and read and understand documents written in English, to understand and work with measurements and calculations, and to engage in reasoning, analysis, synthesis and critical thinking. A student must be able to exercise sufficient judgment to recognize and correct performance deviations, and be able to draw

on all the above mentioned abilities to be an effective problem solver, researcher, and communicator.

5. **Behavioral and social attributes.** A student must have the emotional health required for the full use of his or her intellectual ability. A student must be able to exercise sound judgment, and to act ethically and with integrity. He or she must develop mature, sensitive, and effective professional relationships with others. A student must be self-motivated, reliable and responsible to complete assigned tasks in a timely manner with no supervision. Students must be able to give attention to detail and have the flexibility to function in a research setting, including adapting to changes in time, place and structure of academic and research settings. The student must have the ability to work with diverse groups.

NOTE: Reasonable accommodations will be considered and may be made to qualified students who disclose a disability, so long as such accommodation does not significantly alter the essential requirements of the curriculum and the training program, or significantly affect the safety of patient care. Students who disclose that they have a disability are considered for the program if they are otherwise qualified. Qualified students with a disability who wish to request accommodations should provide the appropriate documentation of disability and submit a request for accommodation to the University's Office for Academic Accommodations.