Health Data Informatics Graduate Certificate

The Health Data Informatics 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 Health Data Informatics 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 electronic health records data, acquisition, preprocessing and management of the data.
2. becoming excellent consumers of the literature where biostatistical and electronic health records data applications are utilized.
3. applying many of the common biostatistical and informatics methods to complement his or her everyday job duties. Course work in this program is designed with this purpose in mind.

This program brings statistics and informatics together with a focus on electronic health records data. This combination of skill sets is highly sought after and is required in many healthcare institutions and industries. The Health Data Informatics Graduate Certificate degree typically complements prior education and careers in:

- Pharmaceutical Industry
- Health Care
- Insurance Companies
- Consulting
- Education
- Health Analytics
- Health Research
- Government
- Biotechnology

The application for the Health Data Informatics 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/health-data-science-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 and Calculus II (or equivalent) or completion of STAT 655: Foundations of Mathematics for Data Science with a grade of B or higher.
- Successful completion of a course in any computer programming language or demonstration of mastery via credentials or work experience.
- Contact information for three references who are familiar with the applicant's work and character and who have agreed to write letters of recommendation.
- 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.

A minimum of **15 post-Bachelor's degree credit hours** are required with a minimum GPA of 3.0 on a 4.0 scale. The proposed educational program will utilize all the existing statistical, computational, and health informatics foundation courses. The curriculum of the Graduate Certificate in Health Data Informatics is built upon required statistics and computing foundation course and required informatics foundation courses. In addition, the program requires six credit hours of elective courses of students' choice.

Required Statistics and Computing Foundation Courses (3 SCH)

Code	Title	Hours
HDSC 823	Introduction to Programming and Applied Statistics in R	3

Required Health Informatics Foundation Courses (6 SCH)

Code	Title	Hours
HDSC 812	Clinical Data Management	3
HDSC 831	Advanced Health Informatics	3

Electives (6 semester credit hours (SCH))

Successful completion of a minimum of 6 credit hours of elective coursework from the list below, or other courses under BIOS/STAT/DATA prefix offered by the department. Specific courses are determined in consultation with the student's advisor.

Code	Title	Hours
DATA 817	Introduction to Tableau	1
DATA 819	Introduction to Python	1
DATA 822	Introduction to SQL	1
DATA 824	Data Visualization and Acquisition	3
HDSC 826	Data Literacy	3
HDSC 835	Categorical Data Analysis	3
HDSC 840	Linear Regression	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».*

Year 1

Fall	Hours	Spring	Hours	Summer	Hours
Choose two elective courses from the following list:	6	HDSC 812 (Required)	3	HDSC 823 (Required)	3
HDSC 826 (Elective)		HDSC 831 (Required)	3		
HDSC 840 (Elective)					
HDSC 835 (Elective)					
DATA 824 (Elective)					
	6		**6**		**3**

Total Hours 15

At the completion of the Health Data Informatics Graduate Certificate program, the student should be able to:

- Demonstrate an understanding of statistical methods and health data informatics practices.
- Demonstrate knowledge and understanding of diverse electronic health record data sources, computational methods, and visualization techniques.
- Assist with extracting, pre-processing and managing electronic health records data for analysis and interpretation.
- Effectively communicate health data informatics principles to peers with diverse health science backgrounds.
- Serve as an advocate for robust data management design and best practices for electronic health outcomes data.

Because the Graduate Certificates in Biostatistics, Biostatistical Applications, Applied Statistics, Applied Data Science, Health Data Science, and Health Data Informatics 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 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.