

Systems Medicine, MS

The Master of Science in Systems Medicine (<https://systemsmedicine.georgetown.edu/>) at Georgetown University is the first in the nation to train students in the new era of Big Data and -omics. Students have hands-on experiences in state-of-the-art -omics technology, including Next Generation sequence analysis, microarray sequence analysis and mining clinical resources.

One of the highlights of the program is the capstone project/practicum/ internship, which allows students to gain desired hands-on work experience. Georgetown University is located in Washington, D.C., giving students easy access to the world's best institutions and hospitals, including the NIH, HHMI, FDA, Inova Fairfax, and MedStar Health. Students will have internship opportunities in renowned institutions, and each student will be matched with a mentor based on their career goals and interests.

- Modality: On Campus
- Academic Policies and Procedures: BGE Handbook (https://docs.google.com/document/d/1rkaOm8U_1eVwabvKL_HFvpfSWrMGnrc6Ex41erxP7g/edit?usp=sharing)
- Contact the Program (<https://systemsmedicine.georgetown.edu/contact/>)

This program is offered through Biomedical Graduate Education (BGE) (<https://biomedicalprograms.georgetown.edu/>) at Georgetown University School of Medicine.

Requirements

Systems Medicine students complete 19 credits of required courses, a 4-credit capstone internship, and 9 credits of electives.

Code	Title	Credits
Required Courses		23
SYSM 5720	Physiological Genomics	
SYSM 5850	An Intro to Genomic Medicine	
SYSM 5900	Applctn of Biostat to Big Data	
SYSM 5910	Biomedical Informatics	
SYSM 5940	Translational Bioinformatics	
SYSM 5960	Clinical Metabolomics	
SYSM 5930	Critical Read/Sys Medicine ¹	
SYSM 5970	Clinical Bioinformatics ¹	
SYSM 7950	Systems Med. Internship ²	
Elective Courses		9
BCHB 5410	Structural Biology	
SYSM 5110	AI in Research and Work	
SYSM 5115	Compt. and Algorith. Thnking	
SYSM 5600	Systems Thinking	
SYSM 5700	Microbiome & Health: Clin Apps	
SYSM 5730	Innovation in Medicine	
SYSM 5740	Intro to Clinical Anatomy	
SYSM 5750	Selected Topics:Personaliz Med	
SYSM 5750	Selected Topics:Personaliz Med	
SYSM 5760	Genomics in the Lab	

SYSM 5770	Medical Biochemistry
SYSM 5780	AI Foundations:Ethics & Policy
SYSM 5790	Ethics & Policy in Syst. Med.
SYSM 5720	Physiological Genomics
SYSM 5780	AI Foundations:Ethics & Policy
SYSM 5800	AI Applctn in Systems Medicine
SYSM 5410	AI Applctn in Structural Biol.
BCHB 5410	Structural Biology
BCHB 5220	
BCHB 5600	Intro to BioEngineering I
BCHB 5800	Mol & Cell Biology of Viruses
BHTA 6615	
BHTA 6551	Biohaz Threat Agnts/Emer Inf D
BIOL 3900	
BIST 6540	Experimental Design/Clin Trial
BIST 6541	Principles of Epidemiology
TBIO 6523	Cancer Epigenetics
BIOT 5160	Molecular Medicine

Total Credits **32**

¹ Students can take this on its own or as part of SYSM 5720.

² Through the capstone internship (<https://systemsmedicine.georgetown.edu/ms/internship/>), students gain hands-on work experience in renowned institutions and are matched with a mentor based on their career goals and interests. Example practica and a list of current mentors are available upon request. Students may choose to take the capstone internship in one semester (SYSM 7950) or over the course of two semesters (SYSM 7951 and 7952).