

CURRICULUM

1. MS Computer Science Category 'A' (Core) Courses (9 cr required)

Course Number	Course Title	Cr	Course Director	Delivery Method
CSCI 5446	Theory of Automata	3	Tom Altman	In class
CSCI 5451	Algorithms	3	Tom Altman	In class
CSCI 5593	Advanced Computer Architectures	3	Gita Alaghband	In class
CSCI 5573	Operating Systems	3	Ilkyeun Ra	In class

2. MS Computer Science Category 'B' (Elective) Courses (12 cr required)^{† ‡}

Course Number	Course Title	Cr	Course Director	Delivery Method
CSCI 5408	Applied Graph Theory	3	Ellen Gethner	In class
CSCI 5455	Data Mining	3	Farnoush Banaei-Kashani	In class
CSCI 5551	Parallel and Distributed Systems	3	Gita Alaghband	In class
CSCI 5559	Database Systems	3	Farnoush Banaei-Kashani	In class
CSCI 5565	Introduction to Computer Graphics	3	Min Choi	Online
CSCI 5580	Data Science	3	Farnoush Banaei-Kashani	In class
CSCI 5702/7702	Data Mining and Analytics	3	Farnoush Banaei-Kashani	In class
CSCI 5742	Cybersecurity Programming & Analysis	3	Haadi Jafarian	In class
CSCI 5765/7765	Computer Networks	3	Ilkyeun Ra	In class
CSCI 5799/7799	Cloud Computing	3	Ilkyeun Ra	In class
CSCI 5800	Special Topics Courses *prior approval of the director of the track	3	Alternating	In class
CSCI 5930	Machine Learning	3	Ashis Biswas	In class
CSCI 5931	Deep Learning	3	Ashis Biswas	In class
CSCI 5951	Big Data Systems	3	Farnoush Banaei-Kashani	In class
CSCI 5952/7952	Big Data Science	3	Farnoush Banaei-Kashani	In class

[†] Category B course it must be taught by a full time CS faculty member.

[‡] The Category B electives for DSB track must be selected from the set of Data Science course mentioned above; note that course offerings vary from semester to semester and the list of elective courses will be updated accordingly

3. MS Track Electives (9 cr – 3 credits from each C category)

Course Number	Course Title	Cr	Course Director	Delivery Method
C1: Take one course (introductory statistics, pre-requisite for many other courses)				
BIOS 6611 ^{C1}	Biostatistical Methods I	3	Kaizer	In class - every fall
C2: Other Biostatistics or Public Health Courses				
BIOS 6612 ^{C2}	Biostatistical Methods II	3	Rice	In class – every spring
BIOS/BSBT 6310	Practical Clinical Research Informatics	3	Wiley	In class- every summer
BIOS 6645	Predictive Analytics	3	Baron, Colborn, Suresh	In class- spring of even years

BIOS 6640	R for Data Science	3	TBD	In class
BIOS 6643	Analysis of Longitudinal Data	3	Matt Strand	In class
BIOS 6644	Practical Data Wrangling	3	James King	Online
BIOS 6660 ^{C2}	Analysis of Genomic using R and Bioconductor	3	Zhang, Vanderlinden, Russell	In class – variable terms
BIOS 6680 ^{C2}	SAS Database Design and Management	3	Blatchford	In class – every fall
BIOS 6681	Structured Query Language using SAS PROC SQL	3	Blatchford	In class-every summer
BIOS 6685 ^{C2}	Intro to Public Health Informatics	3	Moore	Online – variable terms
BIOS 7718	Introduction to Biomedical Image Analysis	3	Xing	In class-variable terms
C3: Genomics or Bioinformatics domains				
BIOS 7659 ^{C3}	Statistical Methods in Genomics	3	Kechris	In class – fall of even years
CPBS 7711 ^{C3}	Biomedical Informatics	4	Hunter	In class – every fall
MOLB 7620 ^{C3}	Genomics	2	Sikela	In class – every spring
MOLB 7900	R for Bioinformatics	2	Hesselberth	In class – every spring
CANB 7640 ^{C3}	Practical Bioinformatics for Large-Scale Genomics Data Mining	2	Tan	In class – variable terms

4. MS Thesis (6 cr)

Sample 2-year MS Schedule Fall entrance:

Year 1 Fall MS CS Core - Cat A (3 cr) MS CS Core - Cat A (3 cr) MS CS Elective - Cat B (3 cr)	Year 1 Spring MS CS Core - Cat A (3 cr) MS CS Elective - Cat B (3 cr) MS CS Elective - Cat B (3 cr)	Year 1 Summer MS Track Elective (3 cr)
Year 2 Fall MS Track Elective (3 cr) MS CS Elective - Cat B (3 cr)	Year 2 Spring MS Track Elective (3 cr) MS Thesis (3 cr)	Year 2 Summer MS Thesis (3 cr)