Timetable - PhD

	SUMMER	Fall	Winter	Spring	Summer
1st Year	•QBS 110: Integrative Biomedical Sciences Seminar (0.5 units) •Programming Bootcamp	•QBS 120: Biostatistics I •QBS 130: Epidemiology I •QBS 270: Epidemiology Journal Club •QBS 197: Research Rotation •UNSG 700: Mandatory Ethics <u>Preferred Electives</u> •*QBS 110.5: Integrative Biomedical Sciences Seminar Projects(0.5 units •*QBS 136: Applied Epidemiology I	•QBS 100: Molec Basis ofHuman Disease •QBS 121: Biostatistics II: Regression •QBS 131: Epidemiology II •QBS 270: Biostatistics Journal Club •QBS 197: Research Rotation <u>Preferred Electives</u> •*QBS 137: Applied Epidemiology II	•QBS 146: Bioinformatics I •QBS 197: Research Rotation •QBS 270: Bioinformatics Journal Club	•QBS 199: 4th Research Rotation if needed •Begin Organizing Qualifier Exam
2nd year		•QBS 175: Bioinformatics II •QBS 197-198: Research •Journal Club of Choice •QBS 196: Supervised Teaching •Begin Work on Qualifier Exam •Elective Options	•QBS 197: Research •Journal Club of Choice •QBS 196: Supervised Teaching •Continue Work on Qualifier Exam •Elective Options	•QBS 197-198: Research •Journal Club of Choice •QBS 196: Supervised Teaching •Continue Work/defend Qualifier Exam •Elective Options	•QBS 199 or 299: Research •Continue Work/defend Qualifier Exam •Elective Options
3rd Year		•QBS 297-299: Research •Journal Club of Choice •QBS 196: Supervised Teaching	•QBS 297-299: Research •Journal Club of Choice	•QBS 297-299: Research •Journal Club of Choice	•QBS 297-299: Research

Timetable – Health Data Science (18 Units)

Fall: 1st Yr	Winter	Spring	Summer	Fall: 2nd Yr
4 Units	4 Units	4 Units	3 Units	3 Units
QBS181: Data Wrangling	QBS180: Data Visualization	QBS122: Biostatistics III	QBS 185: Health Data Science Capstone (3 Units)	Any Electives
QBS130: Epidemiology I	QBS121: Biostatistics II	QBS108: Machine Learning		
QBS120: Biostatistics I	QBS177: Meth of Stats Learning			
QBS 185.5: Capstone Prep (.5unit)	QBS 185.5: Capstone Prep (.5unit)	QBS 185.5 Capstone Prep (.5unit)		
Mandatory Ethics Course (non-credit)				
Electives:-Choose .5 units from: QBS 110: Integrative Biomedical Research Seminar Series (.5unit) QBS 110.5: Integrative Biomedical Research Seminar Series- Includes Project (.5unit) PEMM 103: Biostatistics QBS 132: Molecular Biologic Markers in Human Health Studies (1 un) QBS 132-2: Molec. Biol. Markers Lab (.5un) QBS 136: Applied Epidemiological Methods I (0.5 un) QBS 175: Bioinformatics II QBS 194: Biostats Journal Club (.5un) QBS 195: Independent Study QBS 270: Epidemiology Journal Club (.5un) QBS 271: Advanced Epi Journal Club (.5un) QBS 147: Genomics: From Data to Analysis CS 174: Machine Learning and Statistical Data Analysis CS 69.11/169.11: Mobile X ENGM184: Intro Opt. Meth. CS 76/176 Artificial Intelligence Math146: Current Prob in Applied Math PH 112 – Medical Care & the Corporation	Electives-Choose .5 units from: QBS 100: Molecular Basis of Human Health & Disease QBS 131: Epidemiology II QBS 137: Applied Epidemiological Methods II (0.5 un) QBS 270: Biostats Journal Club (.5un) QBS 195: Independent Study PH 115: Strategic & Financial Management of Health Care Institutions PH 151: Environmental Health Science and Policy PH 126: Statistical Measurement & Analysis in Quality Improvement PH 131: Patient Centered Health Commun. CS 165: Smartphone Programming CS 178: Deep Learning CS 189: Data Mining & Knowledge Discovery MATH 116: Topics in Applied Math MATH 126: Current Problems Applied Tuck courses	Electives-Choose 1.5 units from: QBS 133: Clinical Epidemiology QBS 146: Bioinformatics I QBS 195: Independent Study QBS 270: Bioinformatics Journal club (.5un) QBS123: Biostats consulting QBS 139/PH 147: Advanced Method in Health Services Research PH119/121: Decision&Cost Eff.Analysis QBS 192: Health Informatics (1 un) ENGM 182: Data Analytics PEMM 132: Clinical Management of Cancer (2020) CS 135: Data Stream Algorithms CS 165: Smartphone Programming CS 174: Machine Learning and Data Analysis CS 189.7: Cognitive Computing w/ Watson CS 189: Data Science for Health ENG 183: Operations Management ENG 180: Corporate Finance Tuck courses		Choose 3 units from: QBS 124: Advanced Multivariate Data Analysis QBS 271: Advanced Epi Journal Club (.5un) QBS 132 & Lab: Molecular Biologic Markers in Human Health Studies (1.5 un) QBS 136: Applied Epidemiological Methods I (0.5 un) QBS 175: Bioinformatics II QBS 176: Methods in Statistical Genetics and Genomics QBS 195: Independent Study QBS 270: Epidemiology Journal Club (.5un) QBS 194: Biostats Journal Club (.5un) QBS 147: Genomics: From Data to Analysis Computer Science, Math, Engineering, Public Health, and Tuck Courses will be updated Spring 2020

Timetable – Epidemiology (18 units)

Fall: 1st Yr	Winter	Spring	Summer	Fall: 2nd Yr
4 Units	**4 Units**	**4 Units**	**3 Units**	**3 Units**
QBS130: Epidemiology I	QBS131: Epidemiology II	QBS133: Clinical Epidemiology	QBS 184: Epidemiology Capstone (3 Units)	Any Electives
QBS136: Applied Epidemiological Methods I (0.5 un)	QBS137: Applied Epidemiological Methods II (0.5 un)	QBS146: Bioinformatics I		
PEMM 103 or QBS 120: Biostats I	QBS121: Biostatistics II	QBS134: Topics in Epidemiology★		
QBS132: Molecular Biologic Markers in Human Health Studies★				
QBS 184.5 Capstone Prep (.5unit)	QBS 184.5 Capstone Prep (.5unit)	QBS 184.5 Capstone Prep (.5unit)		
Mandatory Ethics Course (non-credit)				
Electives: ★Or QBS134: Topics in Epidemiology in Spring QBS 110: Integrative Biomedical Research Seminar Series (.5unit) QBS 110.5: Integrative Biomedical Research Seminar Series- Includes Project (.5unit) QBS 132-2: Molec. Biol. Markers Lab QBS 147: Genomics: From Data to Analysis QBS 175: Foundations of Bioinformatics II QBS 195: Independent Study QBS 270: Epi Journal club (.5un) QBS 271: Advanced Epi Journal Club (.5un) QBS 181: Data Wrangling QBS 194: Biostats Journal Club (.5un) CS 174: Machine Learning & Stats Data Analysis PH 125: Qualitative Methods Toolbox	Electives-Choose 1 unit from: QBS 100: Molecular Basis of Human Health & Disease QBS 180: Data Visualization QBS 195: Independent Study QBS 177: Methods of Stats Big Data QBS 270: Biostats Journal club (.5un) PH 122: Survey Research and Methods PH 151: Environmental Health Science& Policy PH 131: Patient-Centered Health Communications	Electives-Choose .5 - 1 unit from: ★Or QBS132: Molecular Biologic Markers in Human Health Studies in 1st Fall term QBS 134: Topics in Epidemiology QBS 195: Independent Study QBS 122: Biostatistics III QBS 108: Machine Learning QBS 270: Bioinformatics Journal club (.5un) CS 174: Machine Learning and Stats Data Analysis ENGM 182: Data Analytics PEMM 132: Clinical Management of Cancer PEMM 126: Cancer Biology QBS 139/PH 147: Advanced Methods in Health Services Res PH 119/121 – Decision & Cost-Effectiveness Analysis		Choose 3 units from: QBS132: Molecular Biologic Markers in Human Health Studies QBS 132-2: Molec. Biol. Markers Lab QBS 176: Methods in Statistical Genetics and Genomics QBS 147: Genomics: From Data to Analysis QBS 175: Foundations of Bioinformatics II QBS 270: Epi Journal club (.5un) QBS 271: Advanced Epi Journal Club (.5un) QBS 195: Independent Study QBS 181: Data Wrangling QBS 194: Biostats Journal Club (.5un) CS 174: Machine Learning and Statistical Data Analysis PH 154: Social and Behavioral Determinants of Health

Curriculum: Electives (Epidemiology Only)

Tier 1: Select at least 3 courses from this list
QBS132: Molecular Biologic Markers in Human Health Studies
QBS 176: Methods in Statistical Genetics and Genomics
QBS 180: Data Visualization
QBS 132-2: Analysis of Human Molecular Biologic Markers
QBS 147: Genomics: From Data to Analysis
QBS 100: Molecular Basis of Human Health & Disease
QBS 195: Independent Study
QBS 270: Epidemiology Journal Club (.5un)
QBS 271: Advanced Epi Journal Club (.5un)
QBS 175: Foundations of Bioinformatics II
QBS 134: Topics in Epidemiology
QBS 110: Integrative Biomedical Research Seminar Series (.5unit)
QBS 110.5: Integrative Biomedical Research Seminar Series (.5unit)-Includes Project
QBS 177: Methods of Stats Big Data
QBS 122: Biostatistics III: Modeling Complex Data

Tier 2: Remainder may be selected from this list
CS 174: Machine Learning and Statistical Data Analysis
PH 122: Survey Research and Methods
PH 147: Advanced Methods in Health Services Research
PH 125: Qualitative Methods Toolbox
PH 131: Patient-Centered Health Communications
PH 151: Environmental Health Science and Policy
PH 154: Social and Behavioral Determinants of Health
PH 119/121 – Decision & Cost-Effectiveness Analysis
PEMM 126: Cancer Biology
PEMM 132: Clinical Management of Cancer (2020)
ENGM 182: Data Analytics
QBS 194: Biostatistics Journal Club (.5un)
QBS 270: Bioinformatics Journal club (.5un)
QBS 108: Machine Learning
QBS 181: Data Wrangling