**DBMI REQUIREMENTS**

**INCOMING MA STUDENT COHORT 2015-2016**

|  |  |  |
| --- | --- | --- |
| Core Classes – 5 courses | BINF G4000 Acculturation to Programming & Statistics (Fall)  BINF G4001 Introduction to Computer Applications in Health Care & Biomedicine (Fall)  BINF G4003 Methods I: Symbolic Methods (Fall)  BINF G4002 Methods II: Computational Methods (Spring)  BINF G6002 Methods III: Research Methods (for CL, TR or PH students) OR BINF G4015 Computational Systems Biology (for BIO students) (both offered in Spring) | BINF G4000 requires permission of instructor. Students may be exempted from BINF G4000 at instructor’s discretion.  BINF G4001 must be taken fall term of entry  BINF G4002 requires working knowledge of programming, data structures and algorithms that can be fulfilled by successful completion of BINF G4000. Enrolment in BINF G4002 is by permission of instructor.  BINF G4003 requires permission of instructor. |
| Objectives – 2 courses total, 3 different categories: qualitative, quantitative, information technology. Objective category is determined by concentration (BIO, CL, TR, PH).  Translational (TR), and Bioinformatics (BIO) – 1 Quantitative and 1 Information Technology  Clinical (CL) and Public Health (PH) – 2 courses total chosen from among the Qualitative, Quantitative, or Information Technology categories. | Qualitative:  NURS N9352 Qualitative Research Design & Methods  COMS W4170 User Interface Design  Quantitative:  HBSS 4199 or HBSS 4160 Introduction to Biostatistics (Teachers College)  QMSS G4063 Data Visualization  COMS W4705 Natural Language Processing  COMS W4771 Machine Learning  COMS W4772 Advanced Machine Learning  STAT W4026 Applied Data Mining  STAT W4107 Statistical Inference  STAT W4240 Data Mining  STAT G6509 Foundations of Graphical Models  STAT G6104 Applied Statistics  BIST P6104/P6114 Introduction to Biostatistical Methods  BIST P8116 Design of Medical Experiments  BIST P9120 Topics in Statistical Learning and Data Mining  Information Technology:  QMSS G4063 Data Visualization  COMS W4111 Introduction to Databases  CSOR W4246 Algorithms for Data Science  COMS W4156 Advanced Software Engineering  COMS W4231 Analysis of Algorithms  COMS W4444 Programming and Problem Solving  COMS E6111 Advanced Database Systems | Enrollment in some courses restricted to the cross registration change of program period *(*[*http://registrar.columbia.edu/academic-calendar/6*](http://registrar.columbia.edu/academic-calendar/6)*)*. Mailman School of Public Health uses separate forms (see DBMI website). Others use add/drop forms *(*[*http://registrar.columbia.edu/registrar-forms*](http://registrar.columbia.edu/registrar-forms)*)*. BIST P6014/P6114 requires placement exam at Mailman School of Public Health. |
| Domain – 2 courses | Clinical:  BINF G4004 Applied Clinical Information Systems  BINF G4005 Process Redesign in Complex Organizations  BINF G4011 Acculturation to Medicine and Biomedical Informatics  PATH G6003 Mechanisms in Human Disease  Biological:  BINF G4011 Biological Sequence Analysis  BINF G4015 Computational Systems Biology  BINF G4016 Quantitative/Computational Aspects of Infectious Dis  BINF G4017 Deep Sequencing  COMS W4761 Computational Genomics  BIOL W4510 Genomics of Gene Regulation  BIST P8119 Advanced Stat/Comp Methods Genetics/Genomics  ECBM E4060 Intro Genomic Info Science & Technology  Other courses at http://systemsbiology.columbia.edu/courses  Translational:  BINF G4006 Translational Bioinformatics  PATH G6003 Mechanisms in Human Disease  PHAR G8001 Principles of System Pharmacology  BIOT W4200 Biopharmaceutical Development & Regulation  COMS E6998 Computational Methods/High Throughput Sequencing  Public Health:  BINF G4062 Public Health Informatics  EPID P6400/02 Epidemiology  EPID P8471 Social Epidemiology  SOSC P8795 New Media and Health  BIST P6530 Issues & Approaches in Health Policy & Management  EHSC P6385/6 Principles of Genetics and the Environment I and II |  |
| Research – Taken during the term in which you intend to work on and complete your master’s essay requirement | BINF G6001 Projects in Biomedical Informatics (3 points) | BINF G6001, 6 points-PhD and Postdoctoral MA in 1st yr  BINF G6001, 9 points-PhD and Postdoctoral MA in 2nd year  BINF G6001 or BINF G9001 (semester after passing Oral II/Breadth Exam)  Only 1 term of BINF G6001 for 3 points required for all other free standing MA students |
| Research Seminar – Every fall and spring term for CL/PH/TR students. First year for BIO students. | BINF G4099 Research Seminar (P/F) | Passing course is dependent upon attendance as monitored by a sign-in sheet. |
| Master’s Essay | Research under a faculty member’s direction. Content of Master’s Essay dependent upon faculty member. | Download MA essay form for signatures from DBMI website. Requires 2nd reader (faculty member appointed in DBMI) and signature of DBMI chair. |
| Oral I/Breadth Exam | Eligibility restricted to those who have completed the core classes and 3 terms (fall, spring, fall). Email solicitations inquiring who wishes to sit for the exam are sent mid-term in Fall and Spring terms. Exams are scheduled during intercession (January), spring (April/May for graduating students), or summer (June/July). | Study with fellow students. Exam committee composition will be communicated approximately 3 weeks prior to exam. Research advisors may not serve as exam committee members. |
| MA Degree Application | Submit MA degree application to CU registrar’s office term prior to expected graduation *(http://registrar.columbia.edu/registrar-forms/application-degree-or-certificate)* |  |