**DBMI REQUIREMENTS**

**INCOMING PHD & POSTDOCTORAL DEGREE STUDENT COHORT 2015-2016**

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| 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 OR BINF G4015 Computational Systems Biology (not both) (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 entryBINF 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 – 3 courses total, 3 different categories: qualitative, quantitative, information technology. Objective category for each PhD student is determined by concentration (BIO, CL, TR, Data Science, PH).Data Science (DS), Translational (TR), and Bioinformatics (BIO) – 2 Quantitative and 1 Information Technology Clinical (CL) and Public Health (PH) – 2 or 3 courses total chosen from among the Qualitative, Quantitative, or Information Technology categories. If taking only 2 objectives, 3 courses must be taken from the Domain category below. If taking 3 objectives, 2 courses are required from the Domain category below. | Qualitative: NURS N9352 Qualitative Research Design & MethodsCOMS W4170 User Interface DesignQuantitative: HBSS 4199 or HBSS 4160 Introduction to Biostatistics (Teachers College)QMSS G4063 Data Visualization (Teachers College)COMS W4705 Natural Language ProcessingCOMS W4771 Machine LearningCOMS W4772 Advanced Machine LearningSTAT W4240 Data Mining STAT W4026 Applied Data MiningSTAT G6509 Foundations of Graphical ModelsSTAT G6104 Applied StatisticsBIST P6104/P6114 Introduction to Biostatistical MethodsBIST P8116 Design of Medical ExperimentsBIST P9120 Topics in Statistical Learning and Data MiningInformation Technology:QMSS G4063 Data Visualization COMS W4111 Introduction to DatabasesCSOR W4246 Algorithms for Data ScienceCOMS W4156 Advanced Software EngineeringCOMS W4231 Analysis of AlgorithmsCOMS W4444 Programming and Problem SolvingCOMS 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)*  |
| Domain – 2 courses for Data Science (DS), Translational (TR) and Bioinformatics (BIO) students from one of four concentration categories: Clinical (CL), Biological (BIO), Translational (TR), and Public Health (PH). Clinical (CL) and Public Health (PH) students may take 2 or 3 courses, dependent upon number of objectives taken above. For t hose students, if taking 2 domain, take 3 objectives above. If taking 3 domain, take 2 objectives above. | Clinical:BINF G4004 Applied Clinical Information SystemsBINF G4005 Process Redesign in Complex OrganizationsBINF G4011 Acculturation to Medicine and Biomedical InformaticsPATH G6003 Mechanisms in Human DiseaseBiological:BINF G4011 Biological Sequence AnalysisBINF G4015 Computational Systems BiologyBINF G4016 Quantitative/Computational Aspects of Infectious DisBINF G4017 Deep SequencingCOMS W4761 Computational GenomicsBIOL W4510 Genomics of Gene RegulationBIST P8119 Advanced Stat/Comp Methods Genetics/GenomicsOther courses at http://systemsbiology.columbia.edu/coursesTranslational:BINF G4006 Translational BioinformaticsPATH G6003 Mechanisms in Human DiseasePHAR G8001 Principles of System PharmacologyBIOT W4200 Biopharmaceutical Development & RegulationCOMS E6998 Computational Methods/High Throughput SequencingPublic Health:BINF G4062 Public Health InformaticsEPID P6400/02 EpidemiologyEPID P8471 Social EpidemiologySOSC P8795 New Media and HealthBIST P6530 Issues & Approaches in Health Policy & ManagementEHSC P6385/6 Principles of Genetics and the Environment I and II |  |
| Research – Every fall & spring for PhD and Postdoctoral MA | BINF G6001 Projects in Biomedical Informatics (3, 6, or 9 points)BINF G9001 Doctoral Research *after MPhil* (12 points)BINF G9999 Doctoral Dissertation *in last term* (0 points) | BINF G6001, 6 points-PhD and Postdoctoral MA in 1st yr BINF G6001, 9 points-PhD and Postdoctoral MA in 2nd yearBINF G6001 or BINF G9001 (semester after passing Oral II/Breadth Exam, PhD students enroll in BINF G9001. See *DBMI Trainee Handbook* on website), 12 points-PhD & Postdoc MA 3rd and subsequent years |
| Research Seminar – Every fall and spring term for CL/PH/TR students. First year for BIO students. | BINF G4099 Research Seminar (P/F) | Passing dependent upon attendance as monitored by a sign-in sheet.  |
| Ethics Course – 1 for PhD & Postdoctoral MA | CMBS G4010 Responsible Conduct of Research & Related Policy Issues | Must take spring term of first year. |
| Teaching Assistant (TA) - 2 courses | BINF G8010 MPhil Teaching Experience (2 points) | TA for 2 separate classes. Preferences solicited by email in spring term from faculty and students. Final selection made by Training Committee, not instructors |
| Master’s Essay – Postdoctoral MAs | BINF G6001 Projects in Biomedical Informatics | Download MA essay form for signatures from DBMI website. Requires 2nd reader (faculty member appointed in DBMI) and signature of chair. |
| Oral I/Breadth Exam –Postdoctoral MA & PhD | Submit MA degree application to CU registrar’s office *(http://registrar.columbia.edu/registrar-forms/application-degree-or-certificate)* | Eligibility restricted to those who have completed the core classes and 3 terms (fall, spring, fall). |
| Oral II/Depth Exam–PhD | To be scheduled when you are within 6 months of your Dissertation Proposal Exam. See *DBMI Trainee Handbook* for instructions. | After successful completion of this exam, register for BINF G9001 Doctoral Research 12 points in lieu of BINF G6001 Projects. You are now eligible for conferral of your MPhil. The MPhil diploma paperwork will be submitted by the Graduate Program Manager to the GSAS Office of Dissertations. |