

## Department of Biomedical Informatics Requirements for Incoming Student Cohort 2013-2014

<p><b>Core Classes</b> – 4 courses PhD students and postdoctoral fellows must complete by end of spring term of 2nd year</p>	<p>BINF G4001 Introduction to Computer Applications in Health Care &amp; 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)</p>	<p>BINF G4001 must be taken fall term of entry. BINF G4002 requires working knowledge of programming, data structures and algorithms (the equivalent of COMS W3134 or COMS W3137). Both BINF G4002 and BINF G4003 by permission of instructor. Online options for BINF G4002 prerequisite fulfillment: MIT &amp; Stanford's <i>Intro to Computer Science and Programming</i>, Udacity's <i>Intro to Programming in Java or Python</i> (<a href="https://www.udacity.com/course/cs046">https://www.udacity.com/course/cs046</a>) &amp; Coursera's <i>Algorithms</i> (<a href="https://www.coursera.org/course/algs4part1">https://www.coursera.org/course/algs4part1</a>)</p>
<p><b>Math Objective</b> – 1 course</p>	<p>BIST 8116 Design of Medical Experiments BIST P6104/6114 Introduction to Biostatistical Methods OR HBSS 4160/4199 Introduction to Biostatistics (Teachers College) STAT W4107 Statistical Inference APAM E4990 Data Driven Modeling STAT G6104 Applied Statistics</p>	<p>Enrollment in some courses restricted to the cross registration change of program period (<a href="http://registrar.columbia.edu/academic-calendar/6">http://registrar.columbia.edu/academic-calendar/6</a>). Mailman School of Public Health uses separate forms (see DBMI website). Others use add/drop forms (<a href="http://registrar.columbia.edu/registrar-forms">http://registrar.columbia.edu/registrar-forms</a>) Teachers College courses found online via the TC website: <a href="http://www.tc.columbia.edu">http://www.tc.columbia.edu</a></p>
<p><b>Biomedical Objective</b> – 1 course</p>	<p>BIST P6400/02 Epidemiology BIST P6530 Issues &amp; Approaches in Health Policy &amp; Management BINF G4011 Acculturation to Medicine ECBM E4060 Introduction to Genomic Info Science &amp; Technology BCHM G6300 Biochemistry and Molecular Biology of Eukaryotes BINF G4062 Public Health Informatics COMS W4761 Computational Genomics</p>	<p>Physicians and nurses are exempt from requirement</p>
<p><b>Computational Objective</b> – 1 for MA and Postdoctoral MA, 2 for PhD</p>	<p>COMS W4111 Database Systems COMS W4231 Analysis of Algorithms STAT W4240 Data Mining OR COMS W4771 Machine Learning (<i>not both</i>) COMS W4444 Programming and Problem Solving COMS W4701 Artificial Intelligence</p>	<p>Registration for some courses restricted to cross registration change of program period (<a href="http://registrar.columbia.edu/academic-calendar/6">http://registrar.columbia.edu/academic-calendar/6</a>) and requires add/drop forms (<a href="http://registrar.columbia.edu/registrar-forms">http://registrar.columbia.edu/registrar-forms</a>)</p>
<p><b>Electives</b> – 2 three point classes</p>	<p>BINF G4004 Applied Clinical Information Systems BINF G4005 Process Redesign in Complex Organizations BINF G4013 Biological Sequence Analysis BINF G4016 Quantitative/Computational Aspects of Infect Disease BINF G4022 Exploration of Clinician Information Needs BINF G8001 Independent Readings</p>	<p>Any course from the biomedical, math or computational objectives not used toward those requirements. Other relevant graduate level 3-point courses may also be used with prior permission from academic and research advisors.</p>
<p><b>Research</b> – 1 for MA, every fall and spring for PhD and Postdoctoral MA</p>	<p>BINF G6001 Projects in Biomedical Informatics (3, 6, or 9 points) BINF G9001 Doctoral Research <i>after earning MPhil</i> (12 points) BINF G9999 Doctoral Dissertation <i>in last term</i> (0 points)</p>	<p>BINF G6001, 3 points-MA &amp; Postdoctoral MA in 1st term BINF G6001, 6 points-Postdoctoral MA in 2nd yr BINF G6001, 9 points-Postdoctoral MA in 3rd year</p>
<p><b>Research Seminar</b> – Each fall and spring term for full-time CL/PH/TR students. First year for BIO students.</p>	<p>BINF G4099 Research Seminar (P/F)</p>	<p>Passing dependent upon attendance as monitored by a sign-in sheet. Part-time MA students not required to enroll but expected to attend.</p>
<p><b>Ethics Course</b> – 1 for PhD &amp; Postdoc</p>	<p>CMBS G4010 Responsible Conduct of Research &amp; Related Policy Issues</p>	<p>Must take spring term of first year</p>
<p><b>Teaching Assistant (TA)</b> - 2 courses</p>	<p>BINF G8010 MPhil Teaching Experience (2 points)</p>	<p>TA for 2 separate classes. Preferences solicited by email from Training Committee in spring term from faculty and students. Final selection made by Training Committee, not instructors.</p>
<p><b>Master's Essay</b> – for MA students &amp; Postdoctoral MAs</p>	<p>BINF G6001 Projects in Biomedical Informatics</p>	<p>For non postdoc MAs, register for BINF G6001 during term in which you will complete MA essay. Download MA essay form from website.</p>
<p><b>Oral I/Breadth Exam</b> – for MA, Postdoctoral MA &amp; PhD</p>	<p>Submit MA degree application to CU registrar's office at main campus (<a href="http://registrar.columbia.edu/registrar-forms">http://registrar.columbia.edu/registrar-forms</a>)</p>	<p>Eligibility restricted to those who have completed the 4 core classes (for all trainees) &amp; at least 3 terms (fall, spring, fall) for PhD students.</p>