Twin Cities Campus

Biomedical Informatics and Computational Biology Ph.D.

R Bioscience/Biotechnology

Graduate School

Link to a list of faculty for this program.

Contact Information:
Biomedical Informatics and Computational Biology, 300 University Square, 111 South Broadway, Rochester, MN 55904 (507-258-8006; fax: 507-258-8066)
Email: bicbgrad@umn.edu
Website: http://www.r.umn.edu/academics-research/bicb

- Program Type: Doctorate
- Requirements for this program are current for Fall 2018
- Length of program in credits: 60
- This program requires summer semesters for timely completion.
- The Biomedical Informatics and Computational Biology Program is an all-University program delivered on the Rochester and Twin Cities campuses. The University of Minnesota Twin Cities is the degree-granting authority for delivery of the Biomedical Informatics and Computational Biology Program in Rochester.
- Degree: Doctor of Philosophy

Along with the program-specific requirements listed below, please read the General Information section of the catalog website for requirements that apply to all major fields.

The graduate program in biomedical informatics and computational biology (BICB) offers course work in five core areas: 1) biochemistry, molecular and cell biology; 2) database, data mining, and computing; 3) informatics, analysis, and machine learning; 4) mathematics, biostatistics, and statistics; and 5) computational and systems biology. In addition, students select courses from a diverse set of fields, including chemistry, chemical engineering, physics, biophysics, structural biology, imaging, signal processing, and clinical and translational sciences. The curriculum is individualized to fit the student's interest and research direction. Prior coursework may be used to fill the requirements if appropriate. Students may pursue a minor in a different program.

All students receive training in ethics, leadership, and management, including legal and intellectual property issues and entrepreneurship. The Ph.D. program includes an industrial or clinical internship. Students interested in academic careers have the opportunity to participate in development programs that focus on aspects of teaching and learning.

Program Delivery

This program is available:

- via classroom (the majority of instruction is face-to-face)

Prerequisites for Admission

Other requirements to be completed before admission:
The program expects incoming graduate students to have a strong background in the quantitative sciences and varied backgrounds in the life/health sciences. The expected competencies of incoming students may be demonstrated by coursework completed at the undergraduate level or by informal competency examinations.

In addition to completing the online application form, applicants must submit a personal statement, which describes past experiences and career aspirations, and reasons for pursuing graduate studies in biomedical informatics and computational biology. Prospective students should also indicate the names of the BICB graduate faculty whose interests overlap with their own. The department strongly encourages applicants to contact these faculty members before applying. Although there is no page limit for the personal statement, 2-3 pages are recommended.

Special Application Requirements:
Three letters of recommendation and scores from the General Test of the GRE are required. Applicants are admitted only for the fall semester.

GRE scores may be waived for students with significant work or academic experience.

Applicants must submit their test score(s) from the following:

- GRE

International applicants must submit score(s) from one of the following tests:

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- TOEFL
  - Internet Based - Total Score: 79
  - Internet Based - Writing Score: 21
  - Internet Based - Reading Score: 19
  - Paper Based - Total Score: 550
- IELTS
  - Total Score: 6.5
- MELAB
  - Final score: 80

Key to test abbreviations(GRE, TOEFL, IELTS, MELAB).

For an online application or for more information about graduate education admissions, see the General Information section of the catalog website.

Program Requirements

30 credits are required in the major.
24 thesis credits are required.

This program may be completed with a minor.

Use of 4xxx courses toward program requirements is permitted under certain conditions with adviser approval.

A minimum GPA of 2.80 is required for students to remain in good standing.

Ph.D. students take preliminary written exams at the end of the second year of study, which focuses on the development of a research proposal. An oral preliminary exam focuses on the plan for thesis research and the student's coursework and is taken by the fall of the third year of full-time registration or its equivalent. At least 24 course credits are required to gain competency in both biology and quantitative areas related to biomedical informatics and computational biology. An internship is required, which may be waived for students with equivalent experience. Additionally, 24 thesis credits are required. Ph.D. students defend their thesis in public and must pass an oral examination.

An internship is required, which may be waived for students with equivalent experience.

Up to 9 credits outside the major may be taken but are not required.

Program Sub-plans

A sub-plan is not required for this program.
Students may not complete the program with more than one sub-plan.

Rochester

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