Bioinformatics (BIIN)

Chairperson: Rebecca L. Sanders, Ph.D.
Program Director: Anne V. Clough, Ph.D.

Bioinformatics website (http://www.mcw.edu/Graduate-School/Academic-Bulletin/Masters-Degree-Programs/Bioinformatics.htm)

Degree Offered

Master of Science, students are admitted under Plan B (non-thesis option) but Plan A (thesis option) is also offered

Program Description

This interdisciplinary program is jointly offered by Marquette University and Medical College of Wisconsin. The program prepares students for a multidisciplinary career in the biomedical sciences using mathematics, statistics and computer science. It is designed to provide students quantitative tools for analyzing data and problems associated with molecular, cellular, physiological and particularly, genetic systems. Students may select courses from a list of approved courses offered by the following departments at Marquette: Mathematics, Statistics and Computer Science; Biology; Biomedical Engineering; and Electrical and Computer Engineering. In addition, courses are offered by the Department of Physiology and the Division of Biostatistics at Medical College of Wisconsin. The program meets the needs of recent undergraduates seeking an advanced degree as well as employed professionals interested in opportunities for career advancement.

Students may pursue the degree on a full-time or part-time basis. Many courses are offered evenings.

Prerequisites for Admission

Applicants must have completed or be in the process of completing a bachelor's degree from an accredited college or university. Applicants with degrees in a wide range of scientific areas will be considered. These areas include: biological and medical science, computer science, mathematics, statistics, engineering and physical sciences. Students may be admitted on a probationary basis if they are not fully prepared to take courses carrying graduate credit in both computer science and biology.

Application Deadline

To be considered for fall admission, all application requirements must be completed and received in the Graduate School. The priority deadline for review of applications is Jan. 15 for both the master's and doctoral programs. After the priority admission deadline, applications will be reviewed on a rolling basis.

Application Requirements

Applicants must submit, directly to the Marquette University Graduate School:

1. A completed application form and fee online (http://marquette.edu/grad/future_apply.shtml).
2. Copies of all college/university transcripts except Marquette.
3. An essay outlining relevant work experience or education, career goals, possible areas of interest, and reasons for seeking admission to this program.
4. Three letters of reference from professors or professionals familiar with the applicant's abilities, academic work, and/or professional background.
5. (For international applicants only) a TOEFL score or other acceptable proof of English proficiency. A recent GRE score is strongly recommended.

* Upon admission, final official transcripts from all previously attended colleges/universities, with certified English translations if original language is not English, must be submitted to the Graduate School within the first five weeks of the term of admission or a hold preventing registration for future terms will be placed on the student's record.

General Information

Students interested in applying to the program should consult the program website (http://www.mcw.edu/graduateschool/Academic-Bulletin/Masters-Degree-Program/Bioinformatics.htm) for a list of currently approved courses and scheduled course offerings for the next term.

Special registration for this program is required, as courses are taken at both institutions. Students must register for BIIN 6947 Medical College of Wisconsin/BIIN-Joint Degree through Marquette University and for the matching MCW course through Medical College of Wisconsin.

Bioinformatics Master's Requirements

Students are admitted to the program under Plan B (non-thesis option), although with the co-directors' approval, students may elect to transfer to Plan A (thesis option). In both options below, courses taken for credit in this program must be from the list of courses approved by the Steering Committee. Exceptions must be approved by the Steering Committee.
Plan B Option (36 credits)
Students must complete 36 credit hours of course work, of which at least 24 hours must be earned in graduate-level courses (6000-level and above). Plan B Option students must take at least 18 credits at Marquette University.

Plan A Option (30 credits)
Students must complete 24 credit hours of course work, of which at least 18 credit hours must be earned in graduate-level courses (6000-level and above). Plan A Option students must take at least 15 credits at Marquette University. Students must also complete a master's thesis for 6 credit hours and pass an oral examination concentrated on the thesis.

Required Courses
For both options (Plans A and B), the following courses are required:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIIN 6000</td>
<td>Introduction to Bioinformatics</td>
<td>3</td>
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<tr>
<td>MSCS 6050</td>
<td>Elements of Software Development</td>
<td>3</td>
</tr>
<tr>
<td>BIIN 6980</td>
<td>Practicum in Bioinformatics</td>
<td>3</td>
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<tr>
<td>3 credits of approved computer science courses at the 6000-level</td>
<td>3</td>
<td></td>
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<tr>
<td>3 credits of approved biological science courses at the 6000-level</td>
<td>3</td>
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<tr>
<td>3 credits of approved computer science or biological science courses at the 6000-level</td>
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<tr>
<td>3 credits of approved biological science or computer science courses at the 5000-level</td>
<td>3</td>
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Total Credit Hours 21