# Marquette University Learning Assessment Plan

## Mathematics, Statistics, and Computer Sciences

### Program: Bioinformatics

**Degree:** M.S.  
**Date Submitted:** July 5, 2007

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<th>Program Learning Outcomes Students will be able to:</th>
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| 1 Understand scientific problems associated with data from at least one of the following areas: molecular biology, biochemistry, cell biology, physiology or genetics. | 1A. Displays an understanding of general biological knowledge associated with bioinformatics.  
1B. Displays an understanding and familiarity with data from a specific area of biology. | 1A. Grades in BIIN 200 and BIIN 201. A rubric provided to BIIN 290 mentors for Plan B (coursework only) students or thesis advisors for Plan A (thesis) students.  
1B. Grades obtained in required six credits of biology related courses. A rubric provided to BIIN 290 mentors for Plan B students or thesis advisors for Plan A students. | Information from grades (1A, 1B, 2A) and from rubrics provided to BIIN 290 mentors or thesis advisors are collected, compiled, and reviewed by the Program Faculty Advisory Committee. Feedback is provided to the student every semester in advising meetings with the Program Director. Summary information and recommendations for program changes made by the Program Faculty Advisory Committee are provided to the Program Steering External Advisory Committees for additional action if necessary. |
| 2. Create relevant algorithms and software for managing or analyzing biomedical data obtained from the research or clinical setting. | 2A. Displays an understanding of standard bioinformatics tools and techniques.  
2B. Implements a novel computational solution to a biological problem in a high-level programming language. | 2A. Grades in BIIN 200 and BIIN 201. Evaluation by a rubric provided to BIIN 290 mentors for Plan B (coursework only) students or thesis advisors for Plan A (thesis) students.  
2B. Evaluation of computational solutions provided in BIIN 290 for Plan B students or thesis for Plan A students by a rubric provided to practicum mentor or thesis advisor respectively. | Information to be collected compiled and reviewed by Program Faculty Advisory Committee. (see above) |
| 3. Communicate effectively with biological and computational scientists about informatics solutions to biological problems. | 3A. Gives an informative bioinformatics presentation to an audience of computer scientists and biologist.  
3B. Writes a report of obtained scientific results or providing a system description. | 3A. (a) For students pursuing Plan B (coursework only), a public oral or poster presentation of work performed in BIIN 290: Practicum in Bioinformatics is given to an audience. A rubric is given to audience members to evaluate the presentation. (b) For students pursuing Plan A (thesis option), a public oral defense is given and the committee members are asked to complete a rubric evaluating the defense presentation.  
3B. (a) For students pursuing Plan B (coursework only), a short report describing work performed in BIIN 290: Practicum in Bioinformatics is submitted to the practicum mentor. The practicum mentor is provided a rubric and evaluates the written work of the student. (b) For students pursuing Plan A (thesis) successful submission of a final approved thesis which is evaluated by the thesis committee. | Information to be collected compiled and reviewed by Program Faculty Advisory Committee. (see above) |