# Marquette University
## Learning Assessment Plan

### Biomedical Engineering

**Program:** Biomedical Engineering  
**Degree:** Ph.D.  
**Date Submitted:** May 3, 2006

<table>
<thead>
<tr>
<th>Program Learning Outcomes Students will be able to:</th>
<th>Performance Indicators</th>
<th>Measures</th>
<th>Use of the Information</th>
</tr>
</thead>
</table>
| 1. Conduct independent research that reflects an original contribution to Biomedical Engineering | a. Research methods appropriate to the topic  
b. Conclusions and main arguments supported by research conducted  
c. Effective use of resources to investigate state of current knowledge relative to research project  
d. Contribute original work | a. Dissertation proposal  
b. Semester evaluation form completed by advisor (check boxes of relative “independent research” ability  
c. Oral dissertation defense evaluated by the dissertation committee  
d. Written dissertation evaluated by the thesis committee  
e. Submission of a manuscript to a peer reviewed journal. The quality measure is Advisor’s approval prior to submission. | |
| 2. Demonstrate technical proficiency in at least one area of Biomedical Engineering | a. Professional quality written proficiency in research area specific portion of the Doctoral Qualifying Exam  
b. Professional quality oral proficiency in research area specific portion of the DQE  
c. Professional quality public presentations of research | a. Doctoral Qualifying written and oral Exams evaluated by Graduate Committee as Pass/Fail  
b. Oral or poster presentations at annual BME Grad Day Symposium - reviewed by conference committee | |
| 3. Recognize need to apply ethical principles in conducting research | a. IRB approval of use of human subjects in dissertation project  
b. Approval of MU animal care committee  
c. Honestly report results & data  
d. Understanding of plagiarism | a. Earn IRB training certificate  
b. Letter from MU animal care committee stating “Approved”.  
c. Attendance at annual ethics topic presentation at the department Brotz seminars and Check Off on dissertation committee evaluation form. A plagiarism indicator is part of proper citing in the dissertation; committee evaluated. |
|---|---|---|
| 4. Submit a manuscript for refereed journal | a. At least one manuscript prepared and submitted to appropriate journal | a. Acceptance or rejection  
b. Reviewer / peer feedback  
c. Whether the manuscript is accepted or not, the receipt of feedback is sufficient to satisfy the performance indicator |
| 5. Demonstrate a commitment to life-long learning by participation in local and national professional development activities on a continuing basis | a. Participation at a professional meeting.  
b. Membership in a technical or professional society  
c. Conduct research  
d. Teaching, consulting, attends seminars, certificates, short courses, etc.  
e. Publish in trade literature | a. Oral or poster presentations at professional Symposia (GLBC, BMES, EMBS, etc.) reviewed by conference committee  
b. Alumni surveys periodically after graduation  
c. Attendance at professional meetings |