

**MS Biomedical Sciences
Program Assessment Plan
University of New Mexico**

A. College, Department and Date

1. College: UNM School of Medicine
2. Department: *Biomedical Sciences*
3. Date: 5/7/08

B. Academic Program of Study

MS, Biomedical Sciences

C. Contact Person(s) for the Assessment Plan

Angela Wandinger-Ness, PhD

D. Broad Program Goals & Measurable Student Learning Outcomes

1. Broad Program Learning Goals for this Degree/Certificate Program

1	Competent, skilled experimentalists
2	Problem solvers
3	Critical and independent thinkers
4	Expert in the field with both depth and breadth of knowledge
5	Excellent communicators
6	Exemplars of high ethical standards

2. List of Student Learning Outcomes (SLOs) for this Degree/Certificate Program

1	Set up and conduct experiments that produce tangible results. Operate equipment and execute methods required for project completion.
2	Diagnose, evaluate, test and determine how to overcome technical and practical problems.
3	Analyze, critique and dissect biological problems. Formulate new hypotheses based on available data, devise strategies for hypothesis testing, and organize and analyze data for publication.
4	Explain and illustrate discipline-specific subject matter. Interpret and evaluate primary literature.
5	Succinctly explain and summarize state of knowledge in field, interpretation of results and conclusions in oral and written form.
6	Demonstrate working knowledge of responsible conduct in research. Critically reflect on ethical problems.

E. Assessment of Student Learning Three-Year Plan

All programs are expected to measure some outcomes annually and to measure all priority program outcomes at least once over two consecutive three-year review cycles. Describe below the plan for the next three years of assessment of program-level student learning outcomes.

1. Student Learning Outcomes

University of New Mexico Student Learning Goals			
Program SLOs	Knowledge	Skills	Responsibility
1. Set up and conduct experiments that produce tangible results. Operate equipment and execute methods required for project completion.	√	√	√
2. Diagnose, evaluate, test and determine how to overcome technical and practical problems.	√	√	√
3. Analyze, critique and dissect biological problems. Formulate new hypotheses based on available data, devise strategies for hypothesis testing, and organize and analyze data for publication.	√	√	√
4. Explain and illustrate discipline-specific subject matter. Interpret and evaluate primary literature.	√	√	√
5. Succinctly explain and summarize state of knowledge in field, interpretation of results and conclusions in oral and written form.	√	√	√
6. Demonstrate working knowledge of responsible conduct in research. Critically reflect on ethical problems.	√	√	√

2. How will learning outcomes be assessed?

A. What:

- i. *For each SLO, briefly describe the means of assessment, i.e., what samples of evidence of learning will be gathered or measures used to assess students' accomplishment of the learning outcomes in the three- year plan?*
- ii. *Indicate whether each measure is **direct** or **indirect**. If you are unsure, then write "Unsure of measurement type." There is an expectation that at least **half of the assessment methods/measures will be direct** measures of student learning. [See attached examples of direct and indirect measures.]*
- iii. *Briefly describe the **criteria for success** related to each direct or indirect means of assessment. What is the program's performance target (e.g., is an "acceptable or better" performance by 60% of students on a given measure acceptable to the program faculty)? If scoring rubrics are used to define qualitative criteria and measure performance, attach them to the plan as they are available.*

<i>i. SLO Assessment</i>		<i>ii. Direct/Indirect</i>	<i>iii. Criteria for Success</i>
Assessment Type	Description		
Capstone Experiences (e.g., projects, papers, theses, dissertations, presentations, research)	Written MS Thesis required. Measures SLO # 1-5.	Direct	To earn a MS, student must complete a written dissertation that is approved by a dissertation committee, consisting of faculty approved for graduate study, program director and Office of Graduate Studies.
Exams (e.g., qualifying exams, comprehensive exams, national standardized exams, certification or licensure exams)	Oral Thesis Defense. Measures SLO # 1-5.	Direct	Must pass or conditionally pass thesis exam on first attempt. BSGP steering committee, program director and OGS oversight.
Internship or Practicum Evaluations of student-specific knowledge or skills from internship supervisors or faculty overseers based on stated program objectives and structured observation of student performance	<ul style="list-style-type: none"> • During first-year curriculum, students are required to complete a series of ethics, safety, human subjects and animal use trainings. Measures SLO 1 and 6. • Lab research with designated Research Mentor. Measures SLO 1-6. • Committee on Studies (COS) meetings (3-6 Faculty; minimum 1 external department member) to review student research progress. COS meetings held every 6-12 months with written report signed by committee members and student. Report also indicates expected progress for next meeting. COS acts as Thesis Defense Exam Committee and faculty are approved for committee service by Office of Graduate Studies. Measures SLO 1-6. 	Direct	<ul style="list-style-type: none"> • Documentation of completed training. Participation in oral and written discussion of all ethics cases as part of BIOM 501. 100% compliance. • Annual activities report submitted by student. Req. for travel awards. • Demonstrated progress toward program milestones that is positively evaluated by COS reports. Deficiencies are expected to be addressed by next meeting. Reports are evaluated by program director and retained in student files. Any significant issues are evaluated by BSGP steering committee.
Portfolios Reviewed by program faculty, outside faculty, professionals, visiting scholars or industry boards	Annual review of student file/progress, which includes Annual Activities and Accomplishments Report, by BSGP Faculty Student Progress Subcommittee. Measures SLO 1-5.	Direct	Student files are evaluated annually by BSGP steering subcommittee for expected progress toward milestones. Formal progress reports are sent to students and mentors noting any deficiencies and expectations for resolution.
Reviews by Professional Jurors of Evaluators Assessment of student projects, papers, posters, etc.	Professional meeting attendance with poster or oral presentations. Measures SLO 1, 3-5.	Direct	It is suggested that students attend and present at one professional meetings during their degree program allowing their work to be evaluated by professionals in the field.
Student publications (in campus, local,	Publication in peer reviewed journals as first or co-author. Measures SLO 1-6.	Direct	Publication is suggested but not required for MS degree. Academic Program Review completed in 2007 for

regional, national, or international venues)			past ten years found that between 2000 and 2005 there were 1.5 peer reviewed publications per student in the MS and PhD program. We expect to maintain or exceed this average.
Exit interviews or focus groups with graduates	Written exit survey is collected upon graduation for tracking career path. Overall program satisfaction is not assessed.	Indirect	Not established.
Interviews with instructors, program coordinators or others who have direct contact with students	BSGP Steering Committee solicits annual to biannual feedback from course instructors through oral report to committee.	Indirect	Student performance in courses and on qualifying exam provide measure of how well first year curriculum prepares students for graduate study.
Retention and transfer studies	This data is collated from departmental records and Office of Educational Research.	Indirect	Between 1996 and 2006, the PhD drop-out rate was 8.6%. PhD students terminating with a MS degree was 0.4%. We expect to maintain or improve on these statistics.
Length of time to degree	Approximately 3 years (due to intense research requirements for degree; non-thesis option is not offered)	Indirect	We expect to maintain this average.
GRE scores	V/Q Average GRE Scores for incoming PhD students is 1210 for 2003-2008	Indirect	We have improved on the average GRE scores by 61 points relative to the previous 6 years. We expect to maintain or improve on this average.
Job placement rates of graduates (including post doc fellowships)	Students encouraged to transfer to PhD track. May go to medical school, other professional schools, national laboratories and industry positions.	Indirect	Rates are not consistently tracked at program level, therefore, criteria for success are not established.
Analysis of grade distributions	Overall GPA of 3.0 or higher.	Indirect	100% compliance is expected for continuation in the program.
Observing and recording students' behaviors	Primary responsibility falls on the research mentor, with support from the Committee on Studies, Steering Committee and Program Director to provide guidance and consultation for issues related to student progress, professionalism and skill development; especially issues related to research ethics. Measures SLO 1-6.	Indirect	Not established.

B. Who: State explicitly whether the program's assessment will include evidence from all students in the program or a sample. Address the validity of any proposed sample of students.

Program assessment will include evidence from all students in the program.

7. When will learning outcomes be assessed? When and in what forum will the results of the assessment be discussed?

[Briefly describe the timeframe over which your unit will conduct the assessment of learning outcomes selected for the three-year plan. For example, provide a layout of the semesters or years (e.g., 2008-2009, 2009-2010, and 2010-2011), list which outcomes will be assessed, and which semester/year the results will be discussed and used to improve student learning (e.g., discussed with program faculty, interdepartmental faculty, advisory boards, students, etc.)]

Time line	Assessment Type	ii. Direct/Indirect	Report/Measures
Annually	Capstone Experiences/ Thesis Defense	Direct	# of successful MS graduates with fraction of Honors Recipients.
Annually	Student publications	Direct	# of primary or co-authored publications in peer reviewed journals per student
Every 3 Years	Length of time to degree	Indirect	Average time to degree over a 3-year period.
Annually	GRE scores	Indirect	Average V/Q scores for matriculated students; indicator of potential for graduate study.

2010-2011: Progress toward plan to address weaknesses noted in Academic Program Review to be discussed with all stakeholders and reviewed by UNM Provost (see attached).

4. What is the unit’s process to analyze/interpret assessment data and use results to improve student learning?

Briefly describe:

- 1. who will participate in the assessment process (the gathering of evidence, the analysis/interpretation, recommendations).*

Student files are maintained by the Biomedical Research Education Program office that includes a team of administrative staff, faculty academic program directors and an Assistant Dean for Research Education. Data gathering for student assessment is the responsibility of the graduate course directors, faculty research mentors, individual committee on studies, a programmatic faculty steering committee and an institutional education research office. Interpretation and recommendations are the responsibility of committee on studies, programmatic faculty steering committee and the program director. The program is expected to undergo a self-study (includes University Provost, Office of Graduate Studies, among others) and external review on a seven-year cycle. Recommendations made by external review committee provide impetus for formulation of new 3-year plan.

2. *the process for consideration of the implications of assessment for change:*

- a. to assessment mechanisms themselves,*
 - b. to curriculum design,*
 - c. to pedagogy*
- ...in the interest of improving student learning.*

A fourteen member interdepartmental steering committee with rotating faculty and student membership and chaired by the program director is charged with admissions, student progress and program oversight. Course directors interface with the committee and the program director. Curriculum design is overseen by the steering committee in conjunction with program faculty.

3. *How, when, and to whom will recommendations be communicated?*

Annually communicated to program faculty by program director and Assistant Dean for Research Education.