

Academic Program
Assessment of Student Learning Plan
University of New Mexico

A. College, Department and Date

1. College: *College of Pharmacy*
2. Department: *N/A*
3. Date: *November 18, 2010*

B. Academic Program of Study*

Master of Science Pharmaceutical Sciences
PhD in Pharmaceutical Sciences

C. Contact Person(s) for the Assessment Plan

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D. Broad Program Goals & Measurable Student Learning Outcomes

The UNM College of Pharmacy offers Master of Science (MS) and Doctoral (PhD) degrees in Pharmaceutical Sciences with the concentration in Pharmacoeconomics, Epidemiology, Public Policy and Outcomes Research (PEPPOR).

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

Goal of MS: The UNM COP Master's Degree Program develops outstanding scientists who can accurately and skillfully interpret, use, and communicate scientific knowledge to solve practical problems in their concentration in the Pharmaceutical Sciences.

Goal of PhD: The UNM COP Doctor of Philosophy (PhD) Program develops outstanding independent research scientists who can design, conduct, and communicate original research that advances their concentration in the Pharmaceutical Sciences.

These goals are accomplished by providing a firm foundation in content, by providing experiences in designing, implementing, interpreting and communicating research, and by developing the skills necessary to read, interpret and apply scientific literature in given context.

* Academic Program of Study is defined as an approved course of study leading to a certificate or degree reflected on a UNM transcript. A graduate-level program of study typically includes a capstone experience (e.g. thesis, dissertation, professional paper or project, comprehensive exam, etc.).

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

A. Assembling and Summarizing Scientific Literature

- MS/PhD 1A.** Assemble a comprehensive body of published research and draw an accurate conclusion about the state-of-the science on a specific topic.
- MS/PhD 2A.** Read, accurately interpret and critically analyze procedures (including error identification), results and conclusions from discipline-specific published research.
- MS/PhD 3A.** Identify and succinctly communicate key hypotheses, theories, controversies, and seminal works related to the research concentration.
- PhD 4A.** Identify knowledge gaps and potential future research needed to advance a specific topic in the student's research field.

B. Written and Oral Communication

- MS 1B.** Clearly communicate, in oral and written form, results from a variety of discipline-specific scientific research.
- PhD 1B.** Clearly communicate, in oral and written form, results from a variety of discipline-specific scientific research, as well as from scientific research conducted by the student.

C. Critical Thinking

- MS/PhD 1C.** Demonstrate independent, critical thinking about key topics and issues in the research concentration.
- MS 2C.** Identify potential errors in and limitations of a key research studies related to work.
- PhD 2C.** Identify potential errors in and limitations of a key research studies related to work, including studies conducted by the student.

D. Ethics and Responsible Conduct

- MS 1D.** Demonstrate knowledge of responsible and ethical conduct in research, including requirements for human subjects, use of animals in research, conflict of interest, data processing, and data reporting.
- PhD 1D.** Demonstrate responsible and ethical conduct in research, including fulfilling all requirements for human subjects, use of animals in research, conflict of interest, data processing, and data reporting.

E. Designing a Scientific Study

- MS 1E.** Design and implement discipline-specific scientific research that, if implemented would produce valid, tangible results.
- PhD 1E.** Design and implement independent, original, discipline-specific scientific research that produces valid, tangible results.
- PhD 2E.** Accurately interpret the results from scientific research conducted by the student.

F. Capstone Project

- MS 1F.** Complete a high-quality thesis, comprehensive examination, or extensive thematic research paper, as required by the concentration.
- PhD 1F.** Complete a discipline-specific, original, publication-quality dissertation.

E. Assessment of Student Learning Three-Year Plan**1. Student Learning Outcomes:**

Relationship to Knowledge, Skills, Responsibility and UNM Student Learning Goals:

	Program SLOs	Knowledge	Skills	Responsibility	Program SLO is conceptually different from university goals.
A. Assembling & Summarizing Scientific Literature	MS/PhD 1A. Assemble a comprehensive body of published research and draw an accurate conclusion about the state-of-the science on a specific topic.	X	X	X	N/A
	MS/PhD 2A. Read, accurately interpret and critically analyze procedures (including error identification), results and conclusions from discipline-specific published research.	X	X	X	N/A
	MS/PhD 3A. Identify and succinctly communicate key hypotheses, theories, controversies, and seminal works related to the research concentration.	X	X	X	N/A
	PhD 4A. Identify knowledge gaps and potential future research needed to advance a specific topic in the student's research field.	X	X	X	N/A
B. Written and oral communication	MS 1B. Clearly communicate, in oral and written form, results from a variety of discipline-specific scientific research. PhD 1B. Clearly communicate, in oral and written form, results from a variety of discipline-specific scientific research, as well as from scientific research conducted by the student.	X	X		N/A
C. Critical Thinking	MS/PhD 1C. Demonstrate independent, critical thinking about key topics and issues in the research concentration.	X	X	X	N/A
	MS 2C. Identify potential errors in and limitations of a key research studies related to work. PhD 2C. Identify potential errors in and limitations of a key research studies related to work, including studies conducted by the student.	X	X	X	N/A
D. Ethics and Responsible Conduct	MS 1D. Demonstrate knowledge of responsible and ethical conduct in research, including requirements for human subjects and use of animals in research. PhD 1D. Demonstrate responsible and ethical conduct in research, including fulfilling all requirements for human subjects and use of animals in research.	X	X (PhD)	X	N/A
E. Designing a Scientific Study	MS 1E. Design and implement discipline-specific scientific research that, if implemented would produce valid, tangible results. PhD 1E. Design and implement independent, original, discipline-specific scientific research that produces valid, tangible results.	X	X	X	N/A
	PhD 2E. Accurately interpret the results from scientific research conducted by the student.	X	X	X	N/A
Capstone Project	MS 1F. Complete a high-quality thesis, comprehensive exam or other applied end-of-degree experience, as required by the concentration. PhD 1F. Complete a discipline-specific, original, publication-quality dissertation.	X	X	X	N/A

2. Key Assessments and Criteria for Success

Student Learning Outcome #	Key Assessment(s)	Direct/ Indirect	Criteria for Success
MS/PhD 1A MS/PhD 2A MS/PhD 3A PhD 4A	Literature search and identification process Background and bibliography sections of the student's thesis/ literature review paper written by the student/comps written exam (assessment of accurate big-picture summarization and assessment of accurate summarization to include appropriate details)	Direct	100% of the students receive a 75% or better on a standardized scoring rubric
MS 1B PhD 1B	MS: Written and oral presentation thesis/ literature review paper written by the student/comps written exam (assessment of written and verbal skills) PhD: Written and oral presentation of student's dissertation and defense (assessment of written and verbal skills)	Direct	100% of the students receive a 75% or better on a standardized scoring rubric
MS/PhD 1C MS 2C PhD 2C	Background and discussion sections of thesis, dissertation or a literature review paper/ comps written exam (critical thinking assessment)	Direct	100% of the students complete
MS 1D PhD 1D	MS: Ethics-related paper or Thesis-related human research protection proposal, Animal use protocol, and/or biohazard management proposal as applicable. PhD: Human research protection proposal, Animal use protocol, and/or biohazard management proposal for dissertation	Direct	100% of the students complete
MS 1E PhD 1E PhD 2E	MS: Thesis proposal, thesis, research plan, or capstone paper/project (application of scientific process assessment) PhD: Dissertation research proposal and methods section of dissertation; Results and discussion sections of Dissertation (application of scientific process assessment)	Direct	100% of the students receive a 75% or better on a standardized scoring rubric
MS 1F PhD 1F	MS: Capstone project PhD: Dissertation and defense	Direct	100% of the graduating students will have completed a committee-reviewed capstone project

3. Program Evaluation

This initial 3.5-year phase of the Graduate Education Program evaluation will look at all of the SLOs within a 3.5-year period to determine where the College's Graduate Education Program stands as a whole. After the initial 3.5-year evaluation is complete, the plan will be modified to have on-going assessment cycles where some outcomes will be assessed annually and all outcomes will be assessed at least once over two consecutive three-year review cycles.

NOTE: Evaluation of the M.S. and PhD programs will occur simultaneously. Rubrics may need to be modified to accommodate different expectations between the M.S. and PhD programs for similar skills or the same rubrics can be used and the outcomes expectations modified slightly (e.g. an average of a 3 for M.S. and 4 for PhD on the same item). This will be determined by the GEC once the rubrics are identified.

Year 1 **Spring 2011**

- **Assessing Assembling and Summarizing Scientific Literature**

January-May 2011 - Assemble standardized rubrics to evaluate the quality of student work to assemble and summarize scientific literature.

RESPONSIBLE PARTY: The Assistant Dean for Assessment will be responsible for collecting and/or creating the rubrics.

June – August 2011 – Review and edit the rubrics

RESPONSIBLE PARTY: The Assistant Dean for Assessment will work with the COP Graduate Education Committee (GEC) to assemble/create rubrics and Organizational Planning and Evaluation Committee/College Assessment Review Committee* (OPEC/CARC) will review the rubrics.

*The CARC is the name given by the UNM Provost's Office of Assessment

Fall 2011

- **Assessing Assembling and Summarizing Scientific Literature**

September – November 2011- Assess student learning outcomes related to assembling and summarizing scientific literature by reviewing the associated Key Assessments for recently graduated Master's students (in the previous 3 years).

RESPONSIBLE PARTY: Key assessments will be reviewed by the GEC using a standardized rubric related to accurately interpreting and summarizing results from multiple research studies.

December 2011 - Produce a summary report of the analysis of programmatic strengths and weaknesses in this area, whether the criteria for success were met and

why or why not the criteria for success were met, and a plan to address weaknesses/deficiencies.

RESPONSIBLE PARTY: The Assistant Dean for Assessment and GEC will be responsible for summarizing the data and writing the report. The report will be presented to OPEC/CARC.

- **Assessing Critical Thinking**

September – November 2011 - Assemble standardized rubrics to evaluate critical thinking.

RESPONSIBLE PARTY: The Assistant Dean for Assessment will work with the GEC to assemble/create rubrics and OPEC/CARC will review the rubrics.

December 2011 - Review and edit the rubrics

RESPONSIBLE PARTY: The OPEC/CARC will review the rubrics.

Year 2

Spring 2012

- **Assessing Critical Thinking**

January – April 2012 - Assess critical thinking by reviewing the associated Key Assessments for all recently graduated Master's students (within the past 3 years).

RESPONSIBLE PARTY: Key assessments will be reviewed by the GEC using a standardized rubric related to critical thinking.

May 2012 - Produce a summary report of the analysis of programmatic strengths and weaknesses in the area of critical thinking, whether the criteria for success were met and why or why not the criteria for success were met, and a plan to address weaknesses/deficiencies.

RESPONSIBLE PARTY: The Assistant Dean for Assessment and GEC will be responsible for summarizing the data and writing the report. The report will be presented to the OPEC/CARC

- **Assessing Verbal and Written Communication**

January – April 2012 - Develop a plan to assess the verbal elements of outcomes 4 in preparation for the review in Spring 2011. Assemble and review standardized rubrics to evaluate verbal and written communication.

RESPONSIBLE PARTY: RESPONSIBLE PARTY: The Assistant Dean for Assessment will work with the GEC to assemble/create rubrics.

May 2012 - Review the plan and rubric(s) and edit as needed.

RESPONSIBLE PARTY: The OPEC/CARC will review the rubric.

Fall 2012

- **Assessing Written and Oral Communication**

September – November 2012- Assess student learning outcomes for written and oral communication using a standardized rubric for assessing scientific writing skill and verbal communication.

RESPONSIBLE PARTY: The GEC will assess learning outcomes for written and verbal communication.

December 2012 - Produce a summary report of the analysis, whether the criteria for success were met and why or why not the criteria for success were met, and a plan to address weaknesses/deficiencies. Present the report to OPEC/CARC.

RESPONSIBLE PARTY: The Assistant Dean for Assessment and GEC.

- **Assessing Ethics and Responsible Conduct**

September – November 2012- Develop a plan and/or assemble and review standardized rubrics to evaluate ethics and responsible conduct.

RESPONSIBLE PARTY: The Assistant Dean for Assessment will work with the GEC to assemble/create rubrics.

December 2012 - Review the plan and rubric(s) and edit as needed.

RESPONSIBLE PARTY: The OPEC/CARC will review

Year 3

Spring 2013

- **Assessing Ethics and Responsible Conduct**

January – April 2013 - Assess learning outcomes related to ethics and responsible conduct by reviewing the identified Key Assessments for all current and/or recently graduated Master's students.

RESPONSIBLE PARTY: Key assessments will be reviewed by the GEC using a standardized rubric related to responsible and ethical conduct in research.

May 2013 - Produce a summary report of the analysis of the outcomes (any programmatic strengths and weaknesses), whether the criteria for success were met and why or why not the criteria for success were met, and a plan to address weaknesses/deficiencies. Present the report to the OPEC/CARC.

RESPONSIBLE PARTY: The Assistant Dean for Assessment and GEC.

- **Assessing Conducting Original Scientific Research**

January – April 2013 - Assemble standardized rubrics to evaluate expectations related to conducting original scientific research.

RESPONSIBLE PARTY: The Assistant Dean for Assessment will work with the GEC to assemble/create rubrics.

May 2013 - Review the rubric(s) and edit as needed.

RESPONSIBLE PARTY: The OPEC/CARC will review

Fall 2013

- **Assessing Conducting Original Scientific Research**

September – November 2013- Assess learning the outcomes related to conducting original scientific research by reviewing the associated Key Assessments for all current and/or recently graduated Master's students.

RESPONSIBLE PARTY: Key assessments will be reviewed by the GEC using a standardized rubric related to application of the scientific process related to developing a viable research plan.

December 2013 - Produce a summary report of the analysis of programmatic strengths and weaknesses related to conducting original scientific research, whether the criteria for success were met and why or why not the criteria for success were met, and a plan to address weaknesses/deficiencies. Present the report to the Organizational Planning and Evaluation Committee (OPEC/CARC).

RESPONSIBLE PARTY: The Assistant Dean for Assessment and GEC.

Year 4

Spring 2013

- **Assessing Capstone Project**

January – April 2013 - Assess completion of capstone project by assembling data on number of students completing the MS program, length of time to completion, graduating students' capstone projects, peer-reviewed publications related to the project, committee members, documentation of committee review and approval.

RESPONSIBLE PARTY: The Assistant Dean for Assessment and the GEC

May 2013 - Produce a summary report of the analysis of programmatic strengths and weaknesses, whether the criteria for success were met and why or why not the criteria for success were met, and a plan to address weaknesses/deficiencies. Present the report to the OPEC/CARC.

RESPONSIBLE PARTY: The Assistant Dean for Assessment and the GEC

4. Process to analyze/interpret assessment data and use results to improve student learning.

The Assistant Dean for Assessment in partnership with the College's Graduate Education Committee (GEC) will be responsible for gathering, analyzing, and interpreting the data and producing a report of the findings to share with the College's Organizational Planning and Evaluation Committee/Curriculum Assessment Review Committee (OPEC/CARC) and the Dean's Executive Leadership Committee (DELIC).

The GEC will provide reports for each outcome assessed in the semester following the assessment. The program evaluation process and schedule proposed for this version of the Assessment Plan provides an initial comprehensive evaluation of the College's graduate

program. After the evaluation is complete at the end of three years, the plan will be modified to have on-going assessment cycles where some outcomes will be assessed annually and all outcomes will be assessed at least once over two consecutive three-year review cycles.

In addition to considering the data and recommendations from an organizational planning perspective, OPEC will consider how well the assessment process worked (i.e. Did the process answer the questions being asked? What was the quality of the data from this process? What modifications need to be made to the process and the Assessment Plan?). Recommendations for implementing improvements based upon assessment results will be included as part of the annual assessment report and presented to the appropriate graduate program (e.g. PEPPOR). Final recommendations will be incorporated into the annual assessment report and presented to the DELC.

The DELC will consider any recommendations with respect to changes that can and should be made within the context of the College's resources and its association with the course delivery. Changes will be implemented via the Department Chair, appropriate college administration, and faculty.

Template Source: Kansas State University Office of Assessment