Assessing Graduate Education’s Unique Milestones: TheDoctoral / Thesis Exam

Dr. Scott Herness, Graduate School
Dr. Thomas Mitchell, Dept. of Plant Pathology
Progress Report

- Established learning goals
- Worked with Pilot Programs
- All programs now developing initial assessment plans
  - identify an assessment contact person
  - reaffirm/revise previously submitted learning goals
  - Identify one key learning goal
  - create an assessment plan around that one goal
Assessment Audit

Direct Measures
- Capstone project
- Oral Exam
- Board Exam / Certifying Exam
- Internship, clinical experience, practica

Indirect Measures
- Course grades
- Retention / Graduation Statistics
- Placement data
- Surveys
Rubric

It is a matrix that states the criteria and standards for student work. It translates informed professional judgment into a numerical ranking.

May be used for a grading tool for an exam

May be aggregated and used for a program
Students can communicate effectively in their discipline.

Job talks, oral exam, poster sessions, elevator speech

May begin with oral exam (versus written) and measure 3 or 4 key outcomes over the next year that would facilitate improvement in that area.

<table>
<thead>
<tr>
<th></th>
<th>Exceeds</th>
<th>Meets</th>
<th>Meets Some</th>
<th>Does not Meet</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demonstrates ability to articulate a research problem.</td>
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</table>
Aggregate and Assess

What is the successful criteria for the goal?
Who will review the data?
Are all the relevant data included?
Who will decide what changes will be made?
Rubric for Graduate Learning Outcomes Assessment: Dissertation

Dr. Thomas Mitchell
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Guiding Principle:

Keep assessment clear, simple, and informative!!!!
Adoption Process

- Faculty retreat to design the learning outcomes.

- A series of repeated faculty education on learning outcomes and goals. This was essential.

- Roughly 3 rounds of refinement following each test defense.

- Sharing results.
Plant Pathology PhD Assessment

- Learning Goals: 7,   Learning Outcomes: 23

- Method: Student performance in dissertation/thesis defense

- Direct Measure: dissertation/defense rubric

  Remainder of outcomes are assessed using other direct and the indirect measures (classes, interviews, and oral presentations).
11 of the 23 outcomes are assessed using the rubric

This rubric is used to:

1) Guide students and teachers in the program

2) Evaluate the program, not the student***

*** This is not an easy concept to convey to students and faculty
How it is used:

1. Rubric given to students at orientation of program.
   • They are aware the rubric is assessing the PROGRAM, not the student.

2. Student Academic Committee members given rubric to review a month prior to exam.

3. SAC completes fill-in version during exam

4. Compile results to share during yearly review of program.
**Explanation of Rankings**

**Exceeds Expectations:** Student goes above and beyond normal expectations of graduate work (example: concepts clearly stated and understood.)

**Meets Expectations:** Student meets the requirements (example: generally organized and understands concepts).

**Meets Some Expectations:** Student meets some of the requirements, but has a limited understanding in some areas. Student needs to work on an aspect of their project (example: concept and ideas are not connected).

**Does Not Meet Expectations:** Student has no understanding of area (example: does not analyze data properly).

For each attribute please select a ranking (checkmark a box).

<table>
<thead>
<tr>
<th>Learning Outcome/Attribute of Student/Criteria</th>
<th>Exceeds Expectations</th>
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<tr>
<td>Demonstrates ability to critically evaluate research findings.</td>
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<td></td>
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<tr>
<td>Demonstrates problem-solving skills.</td>
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<tr>
<td>Selected current primary informational resources used in research area.</td>
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<tr>
<td>Delivered or reported research/project findings to scientific and general audiences in written and oral forms.</td>
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<td>Prepared and defended thesis/project of original research.</td>
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<td>Formulated hypotheses on a central research question.</td>
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<td>Designed experiments using good laboratory/field/computer practices and standard operating procedures.</td>
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<td>Tested hypotheses following good research practices.</td>
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<tr>
<td>Collected information in an organized and timely manner.</td>
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<td>Analyzed data using appropriate measures and techniques.</td>
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<tr>
<td>Conducted scholarly or professional activities in an ethical manner.</td>
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</tr>
<tr>
<td><strong>Totals: tally each expectation column.</strong></td>
<td>/11</td>
<td>/11</td>
<td>/11</td>
<td>/11</td>
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**Full version of rubric** – includes detailed explanation of what SAC members should be looking for in dissertation and students entire program. Read prior to exam.

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<tr>
<td>Demonstrates ability to critically evaluate research findings.</td>
<td>□ Student expresses an <strong>abundant</strong> understanding of research findings. Student shows <strong>mastery</strong> in evaluating appropriate research methods/tools/protocols to effectively collect/analyze/interpret research data or models.</td>
<td>□ Student expresses an understanding of research findings. Students can evaluate appropriate research methods/tools/protocols to effectively collect/analyze/interpret research data or models.</td>
<td>□ Student shows a <strong>limited</strong> understanding of research findings and research methods/tools/protocols to effectively collect/analyze/interpret research data or models.</td>
<td>□ Student lacks an understanding of research findings. Student shows <strong>no</strong> understanding of appropriate research methods/tools/protocols to effectively collect/analyze/interpret research data or models.</td>
</tr>
<tr>
<td>Demonstrates problem-solving skills.</td>
<td>□ Student shows <strong>mastery</strong> of problem-solving skills to identify what needed to be understood about the problem. Student <strong>demonstrated motivation</strong> and explained requirements for solution. Student exhibits <strong>exceptional</strong> ability to recognize problems in the field and formulate solutions to those problems.</td>
<td>□ Student used problem-solving skills to identify what needed to be understood about the problem. Student explained requirements for solution. Student exhibits ability to recognize problems in the field and formulate solutions to those problems.</td>
<td>□ Student shows <strong>limited</strong> problem-solving skills to identify what needed to be understood about the problem and shows a <strong>limited</strong> understanding of problem-solving skills. Student’s recognition of problems in the field and their ability to formulate solutions to those problems is <strong>limited</strong>.</td>
<td>□ Student <strong>did not use</strong> problem-solving skills to identify what needed to be understood about the problem and <strong>lacks</strong> an understanding of problem-solving skills. Student <strong>cannot</strong> recognize problems in the field or formulate solutions to those problems.</td>
</tr>
</tbody>
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### Explanation of Measures/Rankings

- **Exceeds Expectations**: Student goes above and beyond normal expectations of graduate work (example: concepts clearly stated and understood.)
- **Meets Expectations**: Student meets the requirements (example: generally organized and understands concepts).
- **Meets Some Expectations**: Student meets some of the requirements, but has a limited understanding in some areas. Student needs to work on an aspect of their project (example: concept and ideas are not connected).
- **Does Not Meet Expectations**: Student has no understanding of area (example: does not analyze data properly).
Criteria for outcomes used in rubric:

- A minimal acceptable criterion for this outcome is 70% of students receive a "meets or exceeds expectations" level on the identified assessment tasks. When 90% of the students obtain an “exceeds expectations" level on the selected assessment associated assignments, the performance standard constituting programmatic excellence for this learning outcome will be attained.

Example Results for 1 Outcome (27 evaluations, 7 students):

<table>
<thead>
<tr>
<th>Outcome: Demonstrate ability to critically evaluate research findings.</th>
<th>Exceeds Expectations</th>
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<th>Does Not Meet Expectations</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>8 marks from evaluators/30%</td>
<td>11 marks from evaluators/40%</td>
<td>8 marks from evaluators/30%</td>
<td>0 marks from evaluators/0%</td>
</tr>
</tbody>
</table>

70% students meet and/or exceed expectations – Criterion MET
30% students exceed expectations – Criterion NOT MET
Implimentatoin:

1. Review and Adjust criterion annually – report to faculty at annual retreat

2. Reconsider learning outcomes

3. **Programmatic changes** to meet learning outcome to attain criterion
The person behind all this work

Sarah Williams

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For copies of the rubric contact me:
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