Expected Outcome 1. COMPREHENSIVE UNDERSTANDING OF EMPHASIS AREA IN DISCIPLINE
Ph.D graduate will demonstrate a comprehensive understanding of an emphasis area (either nutrition or hotel and restaurant management).

Assessment Method 1: Evaluation of preliminary written doctoral examination

Assessment Method Description
Doctoral students will answer questions on complex, discipline-specific issues as part of the written preliminary examinations. Student responses will be evaluated by at least two departmental faculty.

Findings
Each member of the doctoral advisory committee (minimum of 4 committee members) administered a written preliminary examination, which was evaluated for pass/fail.
100% of doctoral students passed the written preliminary examinations in 2013-2014 (Nutrition: n=2; Hotel and Restaurant Management: n=3). These exams were designed to test a comprehensive understanding of the area of emphasis, either nutrition or hotel and restaurant management.

How did you use findings for improvement?
The Doctoral Advisory Committee that administers the written preliminary examination assesses the comprehensive understanding of student knowledge by evaluating the responses to questions. However, since the preliminary exam is graded as pass/fail, components of Bloom's Taxonomy of Educational Objectives were not evaluated.
A rubric has been developed (shown below) that would assess the depth and breadth of coverage, critical elements, structure, language, and conventions of written preliminary exams. We have not used this rubric to assess the written preliminary exams, yet. It is anticipated that in 2014-2015, we will
pilot this rubric to assess the academic and professional standards met by the student for the written preliminary examination.

**Grading Rubric for Exams:**

<table>
<thead>
<tr>
<th>Grade</th>
<th>Depth and breadth of coverage</th>
<th>Critical elements</th>
<th>Structure, language and conventions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A = 90% and above</strong></td>
<td>All aspects of the questions/topic were addressed and researched in great depth</td>
<td>The written work shows great depth of thought, excellent development of argument, logical analysis and insight into the question/topic</td>
<td>All aspects of the written work conform to a high academic / professional standard</td>
</tr>
<tr>
<td><strong>B = 80 - 89%</strong></td>
<td>Most aspects of the question/topic were addressed and researched in great depth</td>
<td>The written work shows some evidence of analysis supported by logical argument and insight into the question/topic</td>
<td>Most aspects of the written work conform to a high academic / professional standard</td>
</tr>
<tr>
<td><strong>C = 70 - 79%</strong></td>
<td>Most aspects of the question/topic were addressed and researched adequately</td>
<td>The written work shows evidence of elementary analysis and the development of argument of the question/topic</td>
<td>Most aspects of the written work conform to an acceptable academic / professional standard</td>
</tr>
<tr>
<td><strong>D = 60 - 69%</strong></td>
<td>Basic aspects of the question/topic were addressed and researched adequately</td>
<td>The written work is mainly descriptive, showing basic understanding of the question/topic</td>
<td>The written work displays basic structure</td>
</tr>
<tr>
<td><strong>F = 59% and below</strong></td>
<td>Responses were superficial and/or inadequately addressed the question/topic</td>
<td>The written work demonstrates limited understanding of the question/topic</td>
<td>The written work is not of an academic / professional standard</td>
</tr>
</tbody>
</table>

**Additional Comments**
None.

**Assessment Method 2: Evaluation of oral examination**

**Assessment Method Description**

Ph.D graduates will have been orally examined by their dissertation committee at their defense about the general understanding of the published literature within their emphasis area.
Findings

100% of Ph.D graduates (Nutrition: n=2; Hotel and Restaurant Management: n=3) displayed a mastery of fundamental knowledge of their emphasis area (either Nutrition or Hotel and Restaurant Management) and sub-discipline within the emphasis area, at the final oral exam as certified by the students' Doctoral Advisory Committee and the appointed Graduate Faculty Representative (University reader). The final oral examination tested originality, independence of thought, the ability to synthesize and interpret, and the quality of research presented at the seminar and defense. The final oral examination evaluated principles, historic perspective, as well as data. The final oral examination evaluated the students ability to critically evaluate data and concepts that have contributed to the research.

How did you use findings for improvement?

Currently, the doctoral oral examination does not collect data to assess the depth and breadth of knowledge in the selected field and communication skills displayed by the students during these final exams. And 100% of our doctoral students have successfully completed the oral exam/defense. A rubric has recently been developed to assess content knowledge, overall quality of science, depth of understanding, ability to articulate a position or argument, and communication skills. This will be pilot tested in the 2014-2015 academic year. The rubric is attached below.
<table>
<thead>
<tr>
<th>Dimensions:</th>
<th>A (18-20 points) Exemplary</th>
<th>B (16-17 points) Competent</th>
<th>C (14-15 points) Developing</th>
<th>D Re-examination</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall Understanding</td>
<td>Shows a deep/robust understanding of the topic with a fully developed argument per the categories below</td>
<td>Shows a limited understanding of the topic, not quite a fully developed argument per the categories below</td>
<td>Shows a superficial understanding of the topic, argument not developed enough per the categories below</td>
<td>Shows no understanding of the topic and no argument per the categories below</td>
</tr>
<tr>
<td>Argument</td>
<td>Clearly articulates a position or argument</td>
<td>Articulates a position or argument that is incomplete or limited in scope</td>
<td>Articulates a position or argument that is unfocused or ambiguous</td>
<td>Does not articulate a position or argument</td>
</tr>
<tr>
<td>Evidence</td>
<td>Presents evidence that is relevant and accurate</td>
<td>Presents evidence that is mostly relevant and/or mostly accurate</td>
<td>Presents evidence that is somewhat inaccurate and/or irrelevant, but corrects when prompted</td>
<td>Presents a lot of inaccurate and/or irrelevant evidence</td>
</tr>
<tr>
<td></td>
<td>Presents sufficient amount of evidence to support argument</td>
<td>Presents limited evidence to support argument</td>
<td>Does not present enough evidence to support argument, but augments when prompted</td>
<td>Doesn't present enough evidence to support argument, even when prompted repeatedly</td>
</tr>
<tr>
<td>Implications</td>
<td>Fully discusses the major implications of the argument or position</td>
<td>Adequately discusses some of the major implications of the position</td>
<td>Discusses minor implications (missing the major ones) OR does not discuss major implications adequately</td>
<td>Doesn't discuss the implications of the argument or position</td>
</tr>
<tr>
<td>Structure</td>
<td>There is logic in the progression of ideas</td>
<td>There are a few areas of disjointedness or intermittent lack of logical progression of ideas</td>
<td>Ideas are somewhat disjointed and/or do not always flow logically, making it a bit difficult to follow</td>
<td>Ideas are disjointed and/or do not flow logically, hence argument is very difficult to follow</td>
</tr>
<tr>
<td>Prompting</td>
<td>Did not have to prompt with probing questions at all</td>
<td>Prompted minimally (one or two probing questions)</td>
<td>Prompted a lot (a series of probing questions)</td>
<td></td>
</tr>
</tbody>
</table>

**Additional Comments**
Assessment Method 3: Ability to produce significant research

Assessment Method Description
Ph.D graduates will have produced in their dissertation both independent and original research within their emphasis area and sub-discipline, which will be evaluated by the students' dissertation committees and outside readers.

Findings
100% of Ph.D graduates (Summer 2013 - Spring 2014; Nutrition: n=2; Hotel and Restaurant Management: n=1) produced both independent and original research within their dissertation that is suitable for publication, as certified by the students' dissertation committees and outside readers.

How did you use the findings for improvement?
Since the quality of research performed is an important metric in the assessment of significant research, the following assessments are suggested:

1. Publication record by doctoral student: Can include peer-reviewed publications, published conference abstracts, conference proceedings, Extension reports, etc.,
2. Recording journal impact factors and citations/article

Additional Comments None

Expected Outcome 2. CRITICAL THINKING, PROBLEM-SOLVING, AND EFFECTIVE WRITING
Doctoral students will demonstrate critical thinking, problem solving, and effective writing skills.

Assessment Method 1: Evaluation of examinations

Assessment Method Description
Doctoral students will answer complex discipline specific issues as part of at least 1 graduate class. For the graduate class, evaluation will be completed by the course instructor.
Findings

NTRI 8970 - Advanced Topics in Nutrition, Dietetics, and Hospitality Management: One of the course requirements for doctoral students is to register for Advanced Topics courses. In Summer 2014, an Advanced Topics course was offered on 'Diabetes'. Faculty teaching this course, has been offering this course every Summer for the past 2 years. In this course, 100% of doctoral students made an 'A' in this course (n=2). Students were evaluated on the basis of 2 assessments: Exams & oral presentations. These assessments evaluated critical thinking skills, problem-solving, effective writing and oral communication skills. Exams had multiple-choice questions, short-answer questions, and a take-home question. These questions evaluated the full range of Bloom's taxonomy of educational objectives. Doctoral students were proficient in knowledge & comprehension as evidenced by their excellent scores on Multiple-choice questions (score greater than 90%). Similarly, students exhibited advanced critical thinking skills in both the short-answer (application and analysis-oriented questions) and take-home question (which assessed evaluation and synthesis), scoring over 90% in each of these sections.

NTRI 7520 - Macronutrients and Integration of Metabolism: In this course grades were assessed by a test that consisted of 22 short-answer questions covering the topics of overview of carbohydrates, digestion and absorption of carbohydrates, transport of carbohydrates, metabolism, and diseases and conditions related to carbohydrates. Only 1 doctoral student was enrolled in this course. The student received an outstanding score of 99/100 (A grade).

How did you use findings for improvement?

In NTRI 8970, the faculty member provides students samples of short-answer question and answers prior to the exam. The faculty member then discusses how to answer a short-answer question that reflects adequate depth and breadth of understanding of the topic. Student feedback suggest they are less prepared when it comes to answering multiple-choice questions, and prefer to have more practice-questions. Faculty will provide students more opportunities to practice multiple-choice questions.

NTRI 7520: While the doctoral student performed exceedingly well, it appears there was a decrease in the average score of the knowledge-based questions as compared to the other types of questions among Master's-level graduate students. The faculty will better emphasize the material related to the questions during in-class teaching.
Additional Comments
None

Assessment Method 2: Evaluation of scholarly papers

Assessment Method Description

Doctoral students will analyze refereed scientific literature and produce scholarly abstracts or scholarly paper as part of at least 1 graduate class. For the graduate class, evaluation will be completed by the course instructor.

NTRI 7510 - Vitamins: As part of NTRI 7510 - Vitamins, doctoral students enrolled will search and analyze refereed, scientific literature to develop a scholarly paper. Evaluation of the scholarly paper was completed by the course instructor. Specific guidelines were provided to students about preparation of the scholarly paper. These included formatting guidelines, and structure of the abstract (in the following order, the title of the published paper, list of authors, journal citation, objectives/purpose of study, methods, results, and summary). Students were required to watch eBriefings from New York Academy of Sciences web page on various topics related to Vitamin D and health: http://www.nyas.org/Publications/Ebriefings/Detail.aspx?cid=74a3c404-4e50-4594-9219-58da125f12df

Students were required to choose a topic from the several available eBriefings, and write a 'review-article' like manuscript, that was at least 8 pages in length, not including citations, on the topic area. The term paper was graded primarily for content, organization and development of topic, and also for use of appropriate scientific vocabulary/terminology, grammar and sentence structure.

Findings

NTRI 7510 - Vitamins: There was only one doctoral student registered for this course. This student achieved an outstanding overall score of 100% in the course. For the Scholarly paper assignment, the student scored 95/100. Based on the grading rubric for scholarly paper (shown below), the student demonstrated advanced skills for content development, organization, and appropriate use of scientific terminology/vocabulary. Occasional errors in grammar, sentence structure or spelling were observed.

HRMT 8860 – Current Issues in Hospitality Management: Of the doctoral students enrolled in this course, four students earned an A and one student
earned a B on a scholarly paper that utilizes theoretically-justified hypotheses addressing specific empirical phenomenon in the hospitality field.

### NTRI 7510: Vitamins - Grading Rubric for Scholarly Paper

<table>
<thead>
<tr>
<th></th>
<th>Unacceptable (Below 70%)</th>
<th>Marginal (70-79%)</th>
<th>Proficient (80-89%)</th>
<th>Advanced (≥ 90%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Content</strong></td>
<td>Does not successfully identify a central purpose or content. Analysis vague or not evident.</td>
<td>Content and analysis are basic or general. Reader gains few insights.</td>
<td>Provides firm content and support for analysis of a sufficient topic. Reader gains some insights</td>
<td>Creative, insightful and displays an in-depth analysis of the topic. Reader gains excellent insight.</td>
</tr>
<tr>
<td><strong>Organization and development</strong></td>
<td>Confusing organization and/or development. Missing introduction, organizational structure and conclusion</td>
<td>Some organization evident, but inconsistent use of introduction, organizational structure and conclusion</td>
<td>Connects ideas within document from introduction to conclusion; points are logically developed and flow from one idea to the next</td>
<td>Organization of document skillfully designed. Contributes to full development of topic</td>
</tr>
<tr>
<td><strong>Use of appropriate scientific vocabulary/terminology</strong></td>
<td>Unfocused or absent use of scientific vocabulary/terminology appropriate for Nutrition Science</td>
<td>Inconsistent use of proper language and scientific vocabulary/terminology appropriate for Nutrition Science</td>
<td>Accurate use of scientific vocabulary/terminology appropriate for Nutrition Science</td>
<td>Persuasive and credible use of scientific vocabulary/terminology appropriate for Nutrition Science</td>
</tr>
<tr>
<td><strong>Grammar, sentence structure and spelling</strong></td>
<td>Multiple errors in grammar, sentence structure or spelling</td>
<td>Occasional errors in grammar, sentence structure or spelling</td>
<td>Uses correct grammar, sentence structure and spelling throughout document</td>
<td>Exceptional written language to enhance readability</td>
</tr>
</tbody>
</table>
How did you use findings for improvement?

NTRI 7510: The instructor required an outline of the scholarly paper to be submitted 2 weeks prior to the deadline for submission of the scholarly paper. This was graded, and feedback on content, organization and development, and use of scientific terminology/vocabulary appropriate in the field of Nutrition Science was provided to the student. This was viewed favorably by the student, and could have contributed to the excellent performance of the student on this assignment. The course instructor will continue to use this strategy in future classes. Further, course instructor will consider requiring completion of this assignment mid-semester, rather than as an end-of-semester exercise since students have several similar assignments in other classes to complete towards the end of the semester.

HRMT 8860: To improve critical thinking/problem-solving skills, the faculty member that teaches this course will incorporate teaching practices that provide initial and continuous feedback on the various parts of the research projects. The faculty member will also be devoting additional time to explain the project further, providing specific examples of published research.

Additional Comments
None.

Expected Outcome 3. EFFECTIVE COMMUNICATION OF RESEARCH

PhD graduates will communicate/disseminate their research findings to scientists, professionals, or lay people

Assessment Method 1: Conference presentations and research publications

Assessment Method Description
Ph.D graduates will have conducted research that is communicated to scientists in their sub-discipline by (a) oral or poster presentations at national or international scientific meetings during their degree program, and (b) scientific publications in peer-reviewed journals within three years of graduation.
Findings
Though only 2 students graduated from the doctoral program, several students had indicated their desire to graduate, and therefore a graduating graduate student survey was administered to such students. Poster or oral presentations at conferences/scientific meetings: 90% of graduating doctoral students (9 out of 10) presented their research findings at conferences/scientific meetings held at the national level. Three students (30%) presented 3 peer-reviewed conference posters or papers, single or co-authored; 2 students each (20%) presented 2 or 5 peer-reviewed conference posters or papers, and 10% presented either 1 or 4 peer-reviewed conference publications (10% each).
Publication in a peer-reviewed scientific journal: 50% of Ph.D graduates published part of their independent and original research in a peer-reviewed journal or other scholarly outlet journal within their sub-discipline. Of these 30% published 1 peer-reviewed journal article and 20% published 2 peer-reviewed journal articles.

How did you use findings for improvement?
Conference presentations and abstract publications: 90% of our Ph.D students presented their research findings at local and national-level meetings and scientific conferences, exceeding our goal of 50%. Such presentations (either poster presentation or oral presentation) provided students the opportunities to better understand the field, to practice effective scientific communication, and provided opportunities to meet peers and network with other leading scientists in the field.
Peer-reviewed journal articles: We achieved our goal of 50% students publishing at least one manuscript by the time they graduate. Since several students submit their manuscripts for publication usually around completion of doctoral dissertation or after, it is suggested that publication status be followed for a period of 3 years after graduation, to better reflect this research communication outcome. A separate survey will need to be generated and sent to students who graduated from the program to evaluate this.

Additional Comments
None.

Assessment Method 2: Doctoral students will demonstrate effective oral communication skills

Assessment Method Description
As part of NTRI 8850 - Doctoral Research Seminar, doctoral students will search and analyze refereed scientific literature to develop a professional
abstract and oral presentation for department faculty and graduate students. Evaluation of the abstract and oral presentation will be completed by attending faculty and graduate students using specific criteria to identify strengths and weaknesses. Grading rubric is shown below:
NTRI 7850/8850 RESEARCH SEMINAR

Presenter's Name: ___________________________ Date: ________

Criteria for Evaluating NDHM Seminar

<table>
<thead>
<tr>
<th>Comments</th>
<th>Poor</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abstract</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Concise but gives pertinent points</td>
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<td></td>
<td></td>
<td></td>
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<tr>
<td>Accurately summarizes presentation</td>
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<td></td>
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<tr>
<td>Correctly referenced</td>
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<tr>
<td>Content</td>
<td></td>
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</tr>
<tr>
<td>Clearly stated problem &amp; justification at beginning</td>
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<tr>
<td>Logically developed &amp; arranged ideas</td>
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<tr>
<td>Presented well chosen studies / information</td>
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<tr>
<td>Gave a clear summary</td>
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<tr>
<td>Stated study limitations &amp;/or unsolved problems</td>
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<tr>
<td>Presentation</td>
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</tr>
<tr>
<td>Spoke confidently, audibly without distracting mannerisms(^1)</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Used appropriate vocabulary, pronunciation, grammar</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Showed clear, concise visual aids</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Integrated text smoothly with visuals</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\(^1\)Identify distracting mannerisms of which the presenter should be aware.

| Discussion |     |   |   |   |   |
| Initiated discussion if no questions asked |     |   |   |   |   |
| Adequate knowledge of subject to answer most questions |     |   |   |   |   |
| Maintained leadership (including under difficult situations) |     |   |   |   |   |

Please check appropriate box: Evaluated by: Faculty_______ Graduate student_______

Abstract Grade: ______A ______B ______C ______D ______F

Content Grade: ______A ______B ______C ______D ______F

Oral Presentation Grade: ______A ______B ______C ______D ______F

PLEASE USE BACK OF PAGE FOR OTHER COMMENTS

Findings

In this course, students are critically evaluated for three areas: abstract, content, presentation. Out of 4 doctoral students registered during Fall 2013, Spring 2014, and Summer 2014 NTRI 8850 course, 2 students achieved an A or A- grade and 2 students achieved a B grade or B- grade for presentation.
Expected Outcome 4. PREPAREDNESS
Doctoral students will be prepared for a professional position or for further
education (e.g., faculty position, postdoc, industry, medical school,
government, non-profit agencies etc.,)

Assessment Method 1: Graduating graduate student survey

Assessment Method Description
Graduating Ph.D students will complete a survey that assess the
preparedness of doctoral student's for employment at public, private, non-
profit, or governmental organizations or pursuit of further education.
Additionally, students will be asked about the quality of the Nutrition
doctoral program.

Findings
Preparedness:

1. Applied for jobs or have plans to apply for jobs or pursue higher
education: Out of the 10 Ph.D graduating students polled, eight
students indicated that they have applied for jobs (80%). Of these,
three students indicated that he/she had already secured a job
(38% placement rate). Two students secured jobs as faculty, and
one was self-employed. Twenty percent of polled students indicated
that they intended to pursue post-doctoral research.

2. Conference presentations/publications: 9/10 graduating students
(90%) indicated that they presented peer-reviewed conference
papers from their doctoral studies in Nutrition. Of these, 10% of
students presented their research in 1 conference, 20% in 2
conferences, 30% in 3 conferences, 10% in 4 conferences, and 20%
in 5 conferences.

3. Peer-reviewed publications: Five out of the 10 graduating students
indicated they have published peer-reviewed journal articles (50%).

4. Other questions on survey:

Q1. My graduate program was academically challenging: 90% of
respondents either agreed or strongly agreed.

Q2. My graduate program prepared me to teach: 80% of respondents
either agreed or strongly agreed

Q3. My graduate program prepared me to carry out research: 90% of
respondents either agreed or strongly agreed

Q4. My graduate program kept pace with recent trends and developments
in the field: 90% of respondents either agreed or strongly agreed.
Q5. Overall rating of doctoral program in Nutrition at Auburn University: 90% (9 out of 10) of the polled students (n=10) rated the overall quality of the doctoral program in Nutrition as excellent or good.

**How did you use findings for improvement?**
(a) Conference presentations and abstract publications: 90% of our Ph.D students presented their research findings at local and national-level meetings and scientific conferences, exceeding our goal of 50%. Such presentations (either poster presentation or oral presentation) provided students the opportunities to better understand the field, to practice effective scientific communication, and provided opportunities to meet peers and network with other leading scientists in the field.
(b) Peer-reviewed journal articles: We achieved our goal of 50% students publishing at least one manuscript by the time they graduate. Since several students submit their manuscripts for publication usually around completion of doctoral dissertation or after, it is suggested that publication status be followed for a period of 3 years after graduation, to better reflect this research communication outcome. A separate survey will need to be generated and sent to students who graduated from the program to evaluate this.
(c) Another aspect that is currently not surveyed is experiential learning (internship opportunities in industry, collaborating labs, outreach activities). A separate question regarding this will need to be added to the survey instrument.

**Additional Comments**
None.