Expected Outcome 1. Demonstrate mastery of fundamental knowledge of nutrition

MS thesis and non-thesis students will demonstrate mastery of fundamental aspects of a sub-discipline within Nutrition

Assessment Method 1: Knowledge of sub-discipline - Macronutrients and Integration of Metabolism

Assessment Method Description

Students will be evaluated on the basis of written exams prepared and evaluated by faculty that teach NTRI 7520: Macronutrients and Integration of Metabolism

Findings

The test that consisted of 22 short-answer questions covering the topics of overview of carbohydrates, digestion and absorption of carbohydrates, transport of carbohydrates, glycolysis, shuttle systems, cellular respiration, metabolism of fructose and galactose, gluconeogenesis, regulation of glycolysis and gluconeogenesis, glycogen metabolism, regulation of glycogen metabolism, pentose phosphate pathway, and diseases and conditions related to carbohydrates.

The average score was an 86.75, with a median score of 85. The range was from 100 to 74. For this section of the class, there were 4 A’s, 4 B’s and 2 C’s. Thus, 80% of the class made either an A or a B on this section.

Test questions varied across the Bloom taxonomy of teaching objectives. Below is a breakdown of the types of questions, the number of questions in each type, and the average score across all students for that type of question out of a possible 5.0 point maximum.
It appears there was a decrease in the average score of the synthesis-based questions as compared to the other types of questions. In addition, the average score of the evaluation-based questions appears to be a bit greater than the average score of the other types of questions.

**How did you use findings for improvement?**

Results were discussed with faculty that co-teach this course. In Spring 2014, faculty that teach this course propose to engage students in "synthesis" type classroom activities. Further, students will be offered a take-home synthesis-level project to complete.

**Additional Comments**

None

**Assessment Method 2: Knowledge of sub-discipline: Hotel and Restaurant Management**

**Assessment Method Description**

Students will be tested on mastery of fundamental aspects of global hospitality challenges and management in the course HRMT 6570: Global Hospitality.

**Findings**

Using a combination of assessments including classroom activities, home work, research proposal report & presentation, and exams, students were assessed for their mastery of fundamental aspects of the issues facing global hospitality. 100% of the students in this course achieved a grade of 'A'. The following Table shows the distribution of points for each of the assessments listed above.
Students demonstrated good writing skills with a 'structured-writing' goal, evidenced by their score on the Country Project. Rubrics that were used to grade the structured writing included: Content, organization, development, use of appropriate terminology in the field, and correct grammar and spelling.

Scores for written exams were varied. Three out of five students earned a 'B' on the first exam, primarily because of a lack of adequate depth of knowledge in their responses to essay questions.

**How did you use findings for improvement?**

For Spring 2014 semester, students will be required to complete a take-home, open-book essay question, prior to Exam 1. This exercise is expected to improve the development of an essay question, with adequate depth and breadth of information related to the proposed area. This will be closely monitored over the next few years to assess the impact of such an exercise.

**Additional Comments**

None

**Assessment Method 3: Knowledge of sub-discipline: Thesis Literature review**

**Assessment Method Description**

Students will produce approved and comprehensive literature review sections within their thesis as certified by the student's graduate advisory committee

**Findings**

100% of MS thesis graduates in the 2012-2013 period (Nutrition: n=9; Hotel and Restaurant Management: n=8) produced an approved and comprehensive literature review section within their
thesis as certified by the student's advisory committee.

**How did you use the findings for improvement?**
While the primary responsibility to evaluate the qualitative information of the literature review section lies with the major professor, the advisory committee, is also able to provide input into this process. Currently, there is no rubric to assess the quality of the literature review. This will be developed and pilot tested in the next academic year.

**Additional Comments**
None

**Assessment Method 4**
Knowledge of sub-discipline: Final oral exam

**Assessment Method(s) Description**
Master's students (thesis and non-thesis) will display a comprehensive knowledge of their sub-discipline at their final oral exam as certified by the students' advisory committee.

**Findings**
100% of graduates (Nutrition: n=9; Hotel and Restaurant Management: n=8) in Summer 2012 to Spring 2013 period displayed comprehensive knowledge of their sub-discipline at their final oral exam as certified by the students' committees

**How did you use findings for improvement?**
Currently there is no rubric to evaluate the final oral exam. This will be developed/adapted and pilot tested in the next academic year.

**Additional Comments**
None
Expected Outcome 2. Scientific methodology

Master's students will demonstrate proficiency in scientific methodology

Assessment Method 1: Evaluation of scholarly papers

Assessment Method Description
As part of NTRI 7510 - Vitamins, Master's students will search and analyze refereed, scientific literature to develop a scholarly paper. Evaluation of the scholarly paper will be completed by the course instructor based on specific criteria shown below:

Criteria for Scholarly paper in NTRI 7510: A scholarly paper on a Vitamin A topic area should be submitted. Students will perform a PubMed search of the topic area and review several journal articles related to the topic. The term paper should be typed, double-spaced, 1” margin, 12-point Arial font, and should be 8 - 10 pages in length (excluding references). The term-paper will need to have the following sub-headings: Title (Bold, first line, center text), Name of student (second line, center text), Abstract (Title in bold, center text; text for 'Abstract' need to be left aligned), Introduction (Title in bold, center text; text for 'Introduction' need to be left aligned), Discussion (Title in bold, center text; text for 'Discussion' need to be left aligned), Literature cited (Title in bold, center text; citations need to be serially numbered and left aligned). References should be numbered consecutively in the order in which they are first mentioned in the text. Identify references in text by Arabic numbers in parentheses. An example of how a reference need to be cited is shown below:


Findings
Scientific methodology - Scholarly paper: NTRI 7510 - Vitamins: Students developed a scholarly paper on various topic areas related to 'Vitamin A and health'. Students had to survey and analyze literature, and write a 'review-article' like manuscript, that was at least 8 pages in length, not including citations. This exercise helped students review and understand the scientific methodology. Of the 15 students registered, 87% made an 'A', and 13% made a 'B'.
How did you use findings for improvement?
Scientific methodology - Scholarly paper - NTRI 7510 - Vitamins: Based on the successful generation of the scholarly paper, students were encouraged to consider expanding their findings for submission to a Journal. Accordingly, one review article was published, as shown below:

Publication:

Faculty will direct students to utilize resources at the Miller Writing Center on AU campus to help write better scholarly papers describing scientific methodology.

Additional Comments
None

Assessment Method 2: Evaluation of research proposal

Assessment Method Description
Students will search and analyze scientific literature to develop a research proposal based on scientific methodology.

Associated with NTRI 7050/7056 - Methods of Research and HRMT 6570/6576 (Global Hospitality), Master's students will submit a written proposal to the instructor, which will be evaluated by the course instructor based on specific criteria, as shown below:

Research proposal - NTRI 7070/7056: Students are required to complete a research proposal that addresses a research question of the students choosing. The research proposal must include literature review, research question(s), hypothesis, rationale and justification, proposed research design, methods, measures, and analyses, and limitations of proposed research.

Research proposal - NTRI 6570/6576: Each student will individually develop a research proposal addressing a topic related to international hospitality business. This is an empirically-based rigorous proposal which is expected to be completed later into the graduate studies and submitted to an appropriate academic journal. The proposed research should contribute to the literature and move it forward. It is based on theoretically-justified hypotheses addressing specific empirical phenomenon in the hospitality field and later tested with actual data gathered for this research. The topic has to be approved by the
instructor, and is specific and narrow in scope. The completed report is in the range of 15-20 pages, following the formatting specified in this syllabus.

A completed proposal will typically include the following components: Abstract; Introduction (background, problem statement, purpose of the study, research questions, significance of the study); Literature Review & Hypotheses Development; Proposed Research Design & Methods (sampling, data collection, survey instrument, statistical analysis, research tasks timetable); List of References; and Appendix (survey instrument, interview protocol, etc.).

**Findings**
As part of Research Methods (NTRI 7050/7056), 100% of students earned an 'A' or 'B' on their research proposal. As part of Global Hospitality (NTRI 6570/6576), 100% of students earned an 'A' on their research proposal.

**How did you use findings for improvement?**
Guidelines were provided to students regarding the structure of the Research proposal, which seemed to help students produce better and balanced written research proposals. To enable students to achieve a higher standard of translating evaluation of scientific methodology to scientific writing, they will be encouraged to seek the assistance of the Miller Writing Center on AU campus.

**Additional Comments**
None

**Assessment Method 3:** Evaluation of research seminar

**Assessment Method Description**
As part of Graduate research seminar, Master's students will search and analyze refereed, scientific literature to develop a professional abstract. Students are critically evaluated for 4 areas - abstract, content, presentation, and discussion. Specifically, to assess scientific methodology, the content portion of the evaluation form will be used. The Seminar Evaluation form (grading rubric) is attached. Input from faculty members and students are used to assign grades.
Findings

92% of students (12 out of 13 students) earned an 'A' and 8% of students earned a 'B' in the content portion of his/her seminar.

How did you use the findings for improvement?

Students will be directed to pay special attention to the section on statistical analyses.
Additionally, students will be encouraged to pay special attention to approval statements regarding responsible conduct of research, including Institutional Review Board (IRB) and Institutional Animal Care and Use Committee (IACUC). Additionally, efforts to identify conflicts of interests, and ethical aspects will also be encouraged.

**Additional Comments**
None

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**Expected Outcome 3. Critical thinking skills**
Master's students will demonstrate critical thinking skills

**Assessment Method 1:** Evaluation of scholarly papers

**Assessment Method Description**
Master's students will search and analyze referred, scientific literature to (a) Develop professional abstracts, and (b) Develop a scholarly paper. Evaluation of abstracts and scholarly papers will be carried out by the course instructor, based on specific criteria, as shown below:

Criteria for Professional Abstracts: Abstracts should be typed, single-spaced, 1” margin, 11-point Arial font, and no longer than one page in length. All abstracts must be refereed journal articles published in the last 10 years and in the appropriate topic area for the appropriate course module. Abstract should contain, in the following order, the title of the published paper, list of authors, journal citation, objectives/purpose of study, methods, results, and summary. All submission must be sent by email. Files should be named using the following convention: Abstract1_Lastname.

Criteria for Scholarly paper: A term-paper on a Vitamin A topic area should be submitted. Students will perform a PubMed search of the topic area and review several journal articles related to the topic. The term paper should be typed, double-spaced, 1” margin, 12-point Arial font, and should be 8 - 10 pages in length (excluding references). The term-paper will need to have the following sub-headings: Title (Bold, first line, center text), Name of student (second line, center text), Abstract (Title in bold, center text; text for ‘Abstract’ need to be left aligned), Introduction (Title in bold, center text; text for ‘Introduction’ need to be left aligned), Discussion (Title in bold, center text; text for ‘Discussion’ need to be left aligned), Literature cited (Title in bold, center text; citations need to be
serially numbered and left aligned). References should be numbered consecutively in the order in which they are first mentioned in the text. Identify references in text by Arabic numbers in parentheses. An example of how a reference need to be cited is shown below:


Findings
(a) Professional Abstracts: NTRI 7530 - Human Nutrient Metabolism: Master's students searched and analyzed refereed scientific literature and submitted 3 abstracts (1-2 pages long). Though students achieved only a mediocre grade for the completion of the first abstract (A:48%, B: 40%, C:6%, and D:6%), abstract grades improved by the end of the semester. Overall, 100% percent of the students earned an 'A' or 'B' for this assessment.
(b) Scholarly paper: NTRI 7510 - Vitamins: Students developed a scholarly paper on various topic areas related to 'Vitamin A and health'. Students had to survey and analyze literature, and write a 'review-article' like manuscript, that was at least 8 pages in length, not including citations. Students generated an outstanding array of articles. Of the 15 students registered, 87% made an 'A', and 13% made a 'B'.

How did you use findings for improvement?
(a) Professional Abstracts - NTRI 7530 - Human Nutrient Metabolism: The course instructor provided students with a detailed feedback on the quality of the first abstract. Based on this, students showed progressive improvement of their evaluation of their scholarly papers.
(b) Scholarly paper - NTRI 7510 - Vitamins: Based on the successful generation of the scholarly paper, students were encouraged to consider expanding their findings for submission to a Journal. Accordingly, one review article was published, as shown below:

Publication:

Additional Comments
 Assessment Method 2: Evaluation of research proposal

Assessment Method Description
Students will search and analyze scientific literature to develop a research
Research proposal: Students are required to complete a research proposal that addresses a research question of the students choosing. The research proposal must include literature review, research question(s), hypothesis, rationale and justification, proposed research design, methods, measures, and analyses, and limitations of proposed research.

**Findings**

In NTRI 7050/7056 - Methods of Research, 83% of students made an 'A' and 17% made a 'B' grade on their written research proposal. Students had difficulty formulating a testable, well-defined hypothesis. Also students had difficulty adequately developing the experimental approach.

**How did you use findings for improvement?**

Since NTRI 7050/7056 is a common class for students with in Nutrition Science and Hotel and Restaurant Management, there are some discipline-specific issues that could be improved.

Research proposal: Faculty will offer an opportunity to develop skills related to defining a testable hypothesis and developing an adequately-described experimental approach. In the proposed exercise, faculty will ask students to read an article, and to develop a 2-page experimental strategy that extends the findings of the particular refereed article.

**Additional Comments**

None

**Assessment Method 3:** Graduating Graduate student survey

**Assessment Method Description**

Students that were registered to graduate were asked to complete the 'Graduating Graduate Student Survey'. The survey was designed to collect information about Auburn University educational experience and career plans after graduation. Responses to questions related to critical thinking skills are included in this section.

**Findings**

1. My graduate program was academically challenging: 100% of respondents either strongly agreed or agreed.
2. My graduate program prepared me to teach: 100% of respondents
either strongly agreed or agreed.
3. My graduate program prepared me to carry out research: 78% of respondents either strongly agreed or agreed, while 22% of students disagreed.
4. My graduate program kept pace with recent trends and developments in the field: 100% of respondents either strongly agreed or agreed.

How did you use the findings for improvement?
The Graduating graduate student survey does not differentiate a MS thesis student from a non-thesis student. It is possible that MS non-thesis students felt inadequately prepared for research, which may have contributed to the 22% Disagree on Question #4 above.
This will be brought for discussion at the Faculty Retreat session. While students are required to register for 5 credit hours of Non-thesis Research, it is possible that the student does not view this as research. Efforts to educate students on "Non-thesis Research" will be explored.
To fully address this, the Graduate Program Director will consider sending a separate survey to graduating students that addresses discipline-specific questions. While this survey instrument is currently available, it will need to be modified to include discipline-specific questions.

Additional Comments
None

Expected Outcome 4. Oral communication skills
Master's students will demonstrate effective oral communication skills

Assessment Method 1: Evaluation of Research Seminar

Assessment Method Description
Students in NTRI 7850 (Research Seminar for Master's program) will search and analyze refereed, current topics in nutrition, dietetics and hospitality management to develop a professional abstract and make an oral presentation for departmental faculty and students. Students are critically evaluated for 4 areas - abstract, content, presentation, and discussion. The Seminar Evaluation form (grading rubric) is attached. Input from faculty members and students are used to assign grades.
Findings
62% of students received an 'A', and 38% received a 'B' in the oral presentation part of the seminar.

How did you use findings for improvement?

Since NTRI 7850 is a common course to both Nutrition and Hotel and Restaurant Management sub-disciplines, there were discipline-specific issues in terms of understanding the concept of a research presentation. Faculty teaching this course has now described, in the course syllabus,
what qualifies as a research article. With that description in syllabi, students are making presentations that are based on research articles.

Additional Comments

Assessment Method 2: Oral presentation of research proposal

Assessment Method Description

Master's students in NTRI 7050 - Methods of Research and NTRI 7056 (Methods of Research - distance course) are required to make an oral presentation to the instructor and graduate students enrolled in this class. Students will present a 10 minute PowerPoint presentation outlining their research proposal, developed for either nutrition or hospitality management.

Findings

For oral presentation of their research, 50% of the class made an 'A' and 50% made a 'B' grade.

How did you use findings for improvement?

Oral presentation: Faculty will provide students with a grading rubric to specifically evaluate components of oral presentation. This is currently being developed.

Additional Comments
None

Expected Outcome 5. Preparedness

Master's students will have applied/made plans for a professional position or for higher education programs.

Assessment Method 1: Graduating graduate student survey

Assessment Method Description
The graduating graduate student survey has several questions that assess the preparedness of Master's students 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 graduate program at Auburn University.

**Findings**

**Preparedness:**

1. Applied for jobs or have plans to apply for jobs or pursue higher education: Five out of 9 students (55%) polled, indicated that they would pursue higher education, either at Auburn University or at other Universities. Four students (45%) indicated that they are either seeking employment or self-employment. One out of 9 students (11%) indicated that he/she already located an employment that they would begin or continue after graduation, and that this job was directly related to the major they graduated from Auburn University.

2. Conference presentations/publications: Four out of 9 students (44%) indicated that they presented peer-reviewed conference papers of their graduate studies in Nutrition. Only 1 student out of 9 (11%) indicated that he/she has an accepted (in press) or published a peer-reviewed journal article.

3. Other questions on survey:
   - My graduate program was academically challenging: 100% of respondents either strongly agreed or agreed.
   - My graduate program prepared me to teach: 100% of respondents either strongly agreed or agreed.
   - My graduate program prepared me to carry out research: 78% of respondents either strongly agreed or agreed, while 22% of students disagreed.
   - My graduate program kept pace with recent trends and developments in the field: 100% of respondents either strongly agreed or agreed.

**Overall rating of Graduate Program:**

Students rated the overall quality of the Master's program in Nutrition as excellent (78%) or good (22%).

**How did you use findings for improvement?**

While we are preparing Master's students for jobs and higher education, there are several areas for improvement. It is anticipated that,

- 50% of our graduating Master's students (thesis option) would have presented peer-reviewed conference papers or posters during the period of their graduate studies in Nutrition at Auburn University.
• 25% of our graduating Master's students (thesis option) would have authored or co-authored (accepted in press or published) a peer-reviewed journal article during the period of their graduate studies in Nutrition at Auburn University.

• 50% of our graduating Master's students (thesis option) would have opportunities for experiential learning (summer internships in collaborating labs, industry, outreach activities)

**Additional Comments**

None