## CHS Nutrition PhD, 2017

The PhD program in Nutrition, Dietetics and Hospitality Management provides graduate students the opportunity to engage in intensive study and research in nutritional studies related to diabetes and obesity. In addition, this doctoral program is designed to prepare excellent graduate students to identify, analyze and respond, in an informed sense, to the dynamic nature of the global hospitality and tourism field.

## Student Learning Outcomes

### Specificity of Outcomes

SLO 1: Students will be able to articulate a doctoral-level comprehension of concepts and theories central to the fields of nutrition or hotel/restaurant management.

SLO 2: Students will be able to effectively communicate orally their research findings of nutrition or hotel /restaurant management to scientists, professionals, or lay people.

SLO 3: Students will be able to effectively communicate in writing their understanding of the concepts and research of nutrition or hotel /restaurant management.

SLO 4: Students will be able to demonstrate knowledge of concepts of human macronutrients: protein, carbohydrate and lipid metabolism.

### Comprehensive Outcomes

The list of student outcomes are comprehensive, and was produced with the consensus of departmental faculty via a series of faculty meetings, following a review of other departments at peer institutions. Our program goal is to make sure that students have a strong comprehension of nutrition or hotel/restaurant management and excellent communication skills, both orally and in writing. The learning outcomes reflect this focus.

### Communicating Student Learning Outcomes

Listed outcomes have been discussed with all faculty in the department, and was later presented to them in written format via email from department head. In addition to posting to departmental website, and inclusion in course syllabi, the list is included on the graduate student handbook, which is provided to students upon starting their graduate studies in the department.

## Curriculum Map

### Curriculum Map

Below is our curriculum map that visually represents the alignment between student learning outcomes and courses. All the students from nutrition, dietetics or hotel /restaurant management are required to take methods of research and research seminar course to complete their doctoral program. Therefore, SLO’s were developed to assess students’ knowledge in these courses.

| **Core Courses**  | **SLO1** | **SLO2** | **SLO3** | **SLO4** |
| --- | --- | --- | --- | --- |
| NTRI 7520 Macronutrients: Integration and Metabolism |  |  |  | 2,3 |
| NTRI 7530 Human Nutrient Metabolism |  |  |  | 2,3 |
| NTRI 7510 Vitamins |  |  |  |  |
| NTRI 7500 Minerals | 1, 2 |  |  |  |
| NTRI 7050 Methods of Research  |  | 1,2 |  |  |
| NTRI 8850 Research Seminar |  |  | 2,3 |  |
| HRMT 6530 Science of Quality Service | 1, 2 |  |  |  |
| HRMT 7010 Advanced Tourism Analysis  | 1 |  |  |  |
| HRMT 7000 Hospitality Enterprise  | 1,2 |  |  |  |
| HRMT 8860 Current Issues in Hospitality Mngt.  | 1,2 |  |  |  |

1-Introduced, 2-Reinforced, 3- Emphasized

## Measurement

### Outcome-Measure Alignment

**Doctoral Level Comprehension:** Assessment of student learning outcomes was evaluated using three assignments:

 1) Preliminary exam

 2) Oral exam /final defense and

 3) Graduate level knowledge in a course.

Doctoral degree oral exam /defense has had a rubric in place for several years to access student’s comprehension in nutrition or hotel/hospitality management (See below under data collection). The mineral course instructor developed a rubric for grading the research paper (See below under data collection)

**Oral Communication:** Assessment of student learning outcomes was evaluated usingNTRI 8850Research Seminar class. The research seminar class has had a rubric in place for several years in the department to access student’s oral communication.

**Effective Writing:** Assessment of student learning outcomes was evaluated using two assignments:

1) Proposal development in NTRI 7050 Methods of Research and

2) Abstract writing in NTRI 7500 Minerals

The course instructors of NTRI 7050 Methods of Research and NTRI 7500 Minerals developed rubric for both assessments (See below under data collection).

**Concepts of Human Macronutrient Metabolism:** Assessment of student learning outcomes was evaluated using pretest and posttest in NTRI 7520 Macronutrient Integration and Metabolism. The pretest was given on the first day of the class and the posttest was administered on the last day of the class using twenty questions, which covers introduction to carbohydrates, digestion /absorption of carbohydrates, transport of carbohydrates, glycolysis, cellular carbohydrate metabolism, fructose and galactose metabolism, control of metabolic pathways, glycogen metabolism and the pentose phosphate pathway.

### Direct Measures

Measures include rubrics developed for the first three SLOs, in addition to a pretest and posttest for SLO 4.

### Data Collection

**Doctoral Level Comprehension:** Student’s doctoral level of comprehensive of nutrition or hotel and restaurant management was measured using the preliminary written exam. At least three faculty evaluated student responses.

In addition, doctoral students were orally examined by their doctoral advisory committee at their proposal defense meeting about their understanding of nutrition or hotel/restaurant management related published literature. To get an overall assessment about a doctoral student’s final defense /oral examination, the attached rubric for evaluation of final oral exam was shared with student’s dissertation committee. The committee consists of five faculty members. Surveys were submitted to the assessment coordinator at the end of the defense.

Doctoral level knowledge in the specific nutrients was collected form NTRI 7500 Minerals class. In that class, students write an eight- to ten-page paper from six original research articles to evaluate an essential mineral for human health. The style of writing assignment classified as technical/scientific writing.  The purpose of the assignment was to provide students with an opportunity to read the scientific literature about specific minerals, analyze the objectives, methods, results, and conclusions of primary research articles, and effectively communicate the pertinent information in a formally written form. This will help the student to understand doctoral level of knowledge in nutrition.

**Oral Communication:** Student effective oral communication in nutrition or hotel and restaurant management was measured using NTRI 8850 Research Seminar Course. The attached seminar evaluation rubric used to collect data from faculty and students during spring and fall semesters. The course instructor shared the feedback to the doctoral students at end of the semester to help them to improve their performance.

**Effective Writing:** Student effective writing skill in doctoral level knowledge of nutrition or hotel and restaurant management was measured using NTRI 7050 Methods of Research and NTRI 7500 Minerals class. In NTRI7050 Methods of Research class, students develop a research proposal using the conceptual analysis as a guide. The grading rubric attached. In NTRI 7500 Minerals class, students write an abstract, submit it to the course instructor for the initial review. The instructor grades and provides detailed comments and suggestions to the student. Students have the opportunity to revise the abstract and submit again to the instructor for a new grade. The course instructor completes a grading rubric during grading process, the scores of each student are tallied for each of the specific domains, and means are presented in the table under results.

**Concepts of Human Macronutrient Metabolism:** Student understanding of human nutrient metabolism, data was collected from NTRI7520 Macronutrient Integration and Metabolism class. A twenty-question pretest/posttest was presented to doctoral students taking this class during spring semester. The test consisted of short answer questions.

**Rubric for evaluation of Oral Exams during PhD defense**

| **Dimensions** | **A (18-20 points)****Exemplary**  | **B (16-17 points)****Competent**  | **C (14-15 points)****Developing**  | **D****Re-examination** |
| --- | --- | --- | --- | --- |
| **Overall Understanding**  | Shows a deep/robust understanding of the topic with a fully developed argument per the categories below  | Shows a limited understanding of the topic, not quite a fully developed argument per the categories below  | Shows a superficial understanding of the topic, argument not developed enough per the categories below  | Shows no understanding of the topic and no argument per the categories below  |
| **Argument**  | Clearly articulates a position or argument  | Articulates a position or argument that is incomplete or limited in scope | Articulates a position or argument that is unfocused or ambiguous | Does not articulate a position or argument  |
| **Evidence**  | Presents evidence that is *relevant and accurate* Presents *sufficient* amount of evidence to support argument  | Presents evidence that is *mostly relevant and/or mostly accurate* Presents *limited* evidence to support argument  | Presents evidence that is *somewhat inaccurate and/or irrelevant*, but corrects when prompted Does *not* present *enough* evidence to support argument, but augments when prompted | Presents *a lot of inaccurate and/or irrelevant* evidence Doesn’t present enough evidence to support argument, even when prompted repeatedly |
| **Implications**  | Fully discusses the major implications of the argument or position  | Adequately discusses some of the major implications of the position  | Discusses minor implications (missing the major ones) OR does not discuss major implications adequately | Doesn’t discuss the implications of the argument or position |
| **Structure**  | There is logic in the progression of ideas  | There are a few areas of disjointedness or intermittent lack of logical progression of ideas  | Ideas are somewhat disjointed and/or do not always flow logically, making it a bit difficult to follow  | Ideas are disjointed and/or do not flow logically, hence argument is very difficult to follow  |
| **Prompting** | Did not have to prompt with probing questions at all  | Prompted minimally (one or two probing questions)  | Prompted a lot (a series of probing questions) |  |

**Rubric for Research Seminar**

NTRI 7850 RESEARCH SEMINAR

Presenter's Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date:\_\_\_\_\_\_\_\_\_

Criteria for Evaluating NDHM Seminar

**Rate from 1 (Poor) to 5 (Excellent)**

**Abstract (10 pts)**

* Accurately summarizes presentation

 **Content (30 pts)**

* Clearly stated problem & justification at beginning
* Background was appropriate to understand the topic
* Logically developed & arranged ideas
* Presented well-chosen studies / information
* Gave a clear summary
* Stated study limitations &/or unsolved problems

**Presentation (20 pts)**

* Spoke confidently, audibly without distracting mannerisms
* Engagement - eye contact with the audience
* Used appropriate vocabulary, pronunciation, grammar
* Showed clear, concise visual aids
* Identify distracting mannerisms of which the presenter should be aware.

 **Discussion (15 pts)**

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

**Please check a box for each element**

**Evaluated by: Faculty\_\_\_\_\_\_ Graduate student\_\_\_\_\_\_**

**PLEASE USE BACK OF PAGE FOR OTHER COMMENTS**

**Grading of Proposal: Research Methods**

|  | **Weight** |
| --- | --- |
| **Title** | 5 pts. |
| **Background / Introduction to topic** | 20 pts. |
| **Objective of the study** | 15 pts. |
| **Hypothesis** | 15 pts. |
| **Research design** | 20 pts. |
| **Limitation of research** | 20 pts. |
| **References** | 5 pts. |
| **Total**  | 100 pts. |

**Rubric for Research Article Grading: Minerals**

|  | **Highly Competent** | **Not Competent** | **Weight** |
| --- | --- | --- | --- |
| **Title** | *The title is clear and concise.* | *Lack of structure or clarity.*  | 5 pts. |
| **Introduction** | *Background sources are varied, high quality,* *pertinent, sufficient, and include primary sources where possible. Background clearly enhances the reader’s ability to understand the topic. The criteria used to select the studies are clear.* | *Too few sources are used, some or* *all are not pertinent, and available primary sources are not included. A disconnect exists between the background and topic. The criteria used to select the studies are absent.* | 10 pts. |
| **Articulate the thesis statement** | *Thesis statement is specific, clear,* *original, and thoughtful, with the potential to contribute to knowledge in the field.*  | *Thesis statement is posed with so* *little clarity as to be confusing, or it is absent.*  | 5 pts. |
| **Main text** | *Articles are relevant,* *important, and balanced, including recent articles. Word choice and tone enhance the discussion of the research.* | *Articles lack relevance, quality, depth and/or balance. Word choice and tone are poor.* | 15 pts. |
| **Summary** | *The summary is clear, thorough,**and appropriate to the thesis statement. Findings are presented clearly, ignoring unimportant results and highlighting the most significant ones.*  | *The summary is missing, unclear,* *simplistic, or biased. Analysis is unrepresentatively selective or unrelated to the thesis statement.* | 10 pts. |
| **Conclusions** | *Conclusions are present, logical,**related to the studies examined, supported by argument and evidence.Writing is well organized and enhances the reader’s ability to understand the conclusions.*  | *Conclusions are missing, unclear, illogical, irrelevant to the studies examined, or unsupported by argument or evidence.Writing is poorly organized. Errors significantly impair the reader’s understanding of the findings and conclusions.*  | 10 pts. |
| **References** | *References are consistent and free of grammatical, syntax and typographical errors.* | *References are inconsistent and contain numerous grammatical,**syntax and typographical errors.* | 5 pts. |
| **Effective and clear communication** | *Writing is free of grammatical,**syntax and typographical errors, is well organized, and enhances the reader’s ability to understand the content.* | *Writing contains significant**grammatical, syntax, and typographical errors and is poorly organized. Errors significantly impair the content. Word choice and tone are poor.* | 10 pts. |

**Rubric for Abstract Grading: Minerals**

|  | **Highly Competent** | **Not Competent** | **Weight** |
| --- | --- | --- | --- |
| **Title** | *The title is clear and concise.* | *Lack of structure or clarity.*  | 1 pt. |
|  **Introduction** | *Background sources are varied, high quality,* *pertinent, sufficient, and include primary sources where possible. Background clearly enhances the reader’s ability to understand the topic. The criteria used to select the studies are clear.* | *Too few sources are used, some or* *all are not pertinent, and available primary sources are not included. A disconnect exists between the background and topic. The criteria used to select the studies are absent.* | 4 pts. |
| **Articulate the thesis statement** | *Thesis statement is specific, clear,* *original, and thoughtful, with the potential to contribute to knowledge in the field.*  | *Thesis statement is posed with so* *little clarity as to be confusing, or it is absent.*  | 2 pts. |
| **Main text** | *Article is relevant,* *important, and balanced. Word choice and tone enhance the discussion of the research. Findings are presented clearly, ignoring unimportant results and highlighting the most significant ones.*  | *Article lacks relevance, quality, depth and/or balance. Word choice and tone are poor. Analysis is unrepresentatively selective or unrelated to the thesis statement.* | 8 pts. |
| **Conclusions** | *Conclusions are present, logical,**related to the study examined, supported by argument and evidence.Writing is well organized and enhances the reader’s ability to understand the conclusions.*  | *Conclusions are missing, unclear, illogical, irrelevant to the study examined, or unsupported by argument or evidence.Writing is poorly organized. Errors significantly impair the reader’s understanding of the findings and conclusions.*  | 4 pts. |
| **References** | *References are consistent and free of grammatical, syntax and typographical errors.* | *References are inconsistent and contain numerous grammatical,**syntax and typographical errors.* | 1 pt. |
| **Effective and clear communication** | *Writing is free of grammatical,**syntax and typographical errors, is well organized, and enhances the reader’s ability to understand the content.* | *Writing contains significant**grammatical, syntax, and typographical errors and is poorly organized. Errors significantly impair the content. Word choice and tone are poor.* | 5 pts. |

## Results

### Reporting Results

1. **Doctoral Level Comprehension:** For the evaluation of doctoral level of comprehension in nutrition or hotel/restaurant management, one doctoral student in nutrition and four doctoral students from hotel/hospitality management passed the written preliminary examinations. These exams were designed to test a comprehensive understanding of nutrition or hotel/restaurant management. Members of the doctoral advisory committee minimum of four committee members administered a written preliminary examination and evaluated for pass or fail.
2. Five doctoral students from nutrition and five students from hotel/restaurant management were tested for originality, independence of thoughts, the ability to synthesize and interpret and the quality of research presented at the seminar and defense. The final oral examination evaluated student’s ability to critically evaluate data and concepts that have contributed to the research, principles, historic perspective, as well as data in nutrition or hotel/hospitality management field. One hundred percent of our doctoral students have successfully completed the oral /defense exam.

|  | **Nutrition and Dietetics** | **Hotel and Restaurant Management** |
| --- | --- | --- |
| **Preliminary exam** | 2015: 22016: 1 | 2015: 42016: 4 |
| **Oral exam /defense** | 2015:12016:5 | 2015: 42016: 5 |

1. Minerals class paper-writing evaluation data used. The table below summarizes data from 2015 and 2016. The number of students is listed parenthetically in the table.

Table: Data from NTRI 7500: Minerals

|  | **Highly Competent** | **Not Competent** | **Weight** | **2015****Score****(n=10)** | **2016****Score****(n=8)** |
| --- | --- | --- | --- | --- | --- |
| **Title** | *The title is clear and concise.* | *Lack of structure or clarity.*  | 5 pts. | 5.00 | 5.00 |
|  **Introduction** | *Background sources are varied, high quality,* *pertinent, sufficient, and include primary sources where possible. Background clearly enhances the reader’s ability to understand the topic. The criteria used to select the studies are clear.* | *Too few sources are used, some or* *all are not pertinent, and available primary sources are not included. A disconnect exists between the background and topic. The criteria used to select the studies are absent.* | 10 pts. | 9.40 | 9.25 |
| **Articulate the thesis statement** | *Thesis statement is specific, clear,* *original, and thoughtful, with the potential to contribute to knowledge in the field.*  | *Thesis statement is posed with so* *little clarity as to be confusing, or it is absent.*  | 5 pts. | 3.60 | 3.75 |
| **Main text** | *Articles are relevant,* *important, and balanced, including recent articles. Word choice and tone enhance the discussion of the research.* | *Articles lack relevance, quality, depth and/or balance. Word choice and tone are poor.* | 15 pts. | 13.80 | 11.25 |
| **Summary** | *The summary is clear, thorough,**and appropriate to the thesis statement. Findings are presented clearly, ignoring unimportant results and highlighting the most significant ones.*  | *The summary is missing, unclear,* *simplistic, or biased. Analysis is unrepresentatively selective or unrelated to the thesis statement.* | 10 pts. | 9.20 | 9.25 |
| **Conclusions** | *Conclusions are present, logical,**related to the studies examined, supported by argument and evidence. Writing is well organized and enhances the reader’s ability to understand the conclusions.*  | *Conclusions are missing, unclear, illogical, irrelevant to the studies examined, or unsupported by argument or evidence. Writing is poorly organized. Errors significantly impair the reader’s understanding of the findings and conclusions.*  | 10 pts. | 10.00 | 8.75 |
| **References** | *References are consistent and free of grammatical, syntax and typographical errors.* | *References are inconsistent and contain numerous grammatical,**syntax and typographical errors.* | 5 pts. | 5.00 | 5.00 |
| **Effective and clear communication** | *Writing is free of grammatical,**syntax and typographical errors, is well organized, and enhances the reader’s ability to understand the content.* | *Writing contains significant**grammatical, syntax, and typographical errors and is poorly organized. Errors significantly impair the content. Word choice and tone are poor.* | 10 pts. | 7.60 | 8.75 |

**2.** **Oral Communication:** For the effective oral communication skill, NTRI 8850 Research Seminar Course evaluation was used. The table below summarizes data from 2016. The number of students is listed parenthetically in the table.

Table: Data from NTRI 7850: Research Seminar

| **Elements** | **weight** | **2016**(n=7) |
| --- | --- | --- |
|  **Abstract (10 pts)** Accurately summarizes presentation | 10 pts.  | 9.6 |
|  **Content (30 pts)** Clearly stated problem & justification at beginning | 5 pts. |  4.8 |
|  **Content (30 pts)** Background was appropriate to understand the topic | 5 pts. |  4.8 |
|  **Content (30 pts)** Logically developed & arranged ideas | 5 pts. |  4.6 |
|  **Content (30 pts)** Presented well chosen studies / information | 5pts. |  4.6 |
|  **Content (30 pts)** Gave a clear summary | 5 pts. |  4.8 |
|  **Content (30 pts)** Stated study limitations &/or unsolved problems | 5 pts. |  4.8 |
|  **Presentation (20 pts)** Spoke confidently, audibly without distracting mannerisms1 |   5 pts.  |  4.6 |
|  **Presentation (20 pts)** Engagement - eye contact with the audience |   5 pts.  |  4.8 |
|  **Presentation (20 pts)** Used appropriate vocabulary, pronunciation, grammar |   5 pts.  |  4.8 |
|  **Presentation (20 pts)** Showed clear, concise visual aids |   5 pts.  |  4.8 |
|  **Discussion (20 pts)** Initiated discussion if no questions asked  |  5 pts.  |  4.8 |
|  **Discussion (20 pts)** Adequate knowledge of subject to answer most questions |  5 pts.  |  4.8 |
|  **Discussion (20 pts)** Maintained leadership (including under difficult situations) |  5 pts.  |  4.8 |
| Total | 75 pts.  | 71.4 |

**3.** **Effective** **Writing:** For the doctoral level effective writing skill, NTRI 7050 Methods of Research class research proposal and NTRI 7500 Minerals class abstract was used. The table below summarizes data from 2015 and 2016. The number of students is listed parenthetically in the table.

Table: Data from NTRI 7050: Methods of Research

|  | **Weight** | **2015****Score****(n=16)** | **2016****Score****(n=13)** |
| --- | --- | --- | --- |
| **Title** | 5 pts. | 5.00 | 5.00 |
| **Background / Introduction to topic** | 20 pts. | 17.70 | 18.85 |
| **Objective of the study** | 15 pts. | 15.00 | 15.00 |
| **Hypothesis** | 15 pts. | 14.80 | 15.00 |
| **Research design** | 20 pts. | 17.20 | 18.00 |
| **Limitation of research** | 20 pts. | 19.70 | 19.50 |
| **References** | 5 pts. | 5.00 | 5.00 |
| **Total**  | 100 pts. | 94.40 | 96.35 |

Table: Data from NTRI 7500: Minerals

|  | **Highly Competent** | **Not Competent** | **Weight** | **2015****Score****(n=10)****Before** | **2015****Score****(n=10)****After** | **2016****Score****(n=8)****Before** | **2016****Score****(n=8)****After** |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Title** | *The title is clear and concise.* | *Lack of structure or clarity.*  | 1 pt. | 1.0 | 1.0 | 0.8 | 1.0 |
|  **Introduction** | *Background sources are varied, high quality,* *pertinent, sufficient, and include primary sources where possible. Background clearly enhances the reader’s ability to understand the topic. The criteria used to select the studies are clear.*  | *Too few sources are used, some or* *all are not pertinent, and available primary sources are not included. A disconnect exists between the background and topic. The criteria used to select the studies are absent.* | 4 pts. | 3.2 | 4.0 | 3.0 | 3.8 |
| **Articulate the thesis statement** | *Thesis statement is specific, clear,* *original, and thoughtful, with the potential to contribute to knowledge in the field.*  | *Thesis statement is posed with so* *little clarity as to be confusing, or it is absent.*  | 2 pts. | 0.8 | 1.5 | 0.6 | 1.8 |
| **Main text** | *Article is relevant,* *important, and balanced. Word choice and tone enhance the discussion of the research. Findings are presented clearly, ignoring unimportant results and highlighting the most significant ones.*  | *Article lacks relevance, quality, depth and/or balance. Word choice and tone are poor. Analysis is unrepresentatively selective or unrelated to the thesis statement.* | 8 pts. | 6.6 | 7.3 | 6.0 | 7.5 |
| **Conclusions** | *Conclusions are present, logical,**related to the study examined, supported by argument and evidence.Writing is well organized and enhances the reader’s ability to understand the conclusions.*  | *Conclusions are missing, unclear,* *illogical, irrelevant to the study examined, or unsupported by argument or evidence.Writing is poorly organized. Errors significantly impair the reader’s understanding of the findings and conclusions.*  | 4 pts. | 3.6 | 4.0 | 3.6 | 3.8 |
| **References** | *References are consistent and free of grammatical,* *syntax and typographical errors.* | *References are inconsistent and contain numerous grammatical,**syntax and typographical errors.* | 1 pt. | 1.0 | 1.0 | 0.9 | 1.0 |
| **Effective and clear communication** | *Writing is free of grammatical,**syntax and typographical errors, is well organized, and enhances the reader’s ability to understand the content.* | *Writing contains significant**grammatical, syntax, and typographical errors and is poorly organized. Errors significantly impair the content. Word choice and tone are poor.* | 5 pts. | 4.2 | 4.5 | 3.6 | 4.5 |
| Total |  |  |  25 pts. | 20.4 | 23.3 | 18.5 | 23.4 |

4. **Concepts of Human Macronutrient Metabolism:** For the student understanding concepts of human macronutrients, NTRI 7520 Macronutrient Integration and Metabolism class pretest and posttest data from carbohydrate metabolism was used. The number of students is listed parenthetically in the table.

|  | **Pretest****(n=4)** | **Posttest****(n=4)** | **Difference****Between post and pretest** |
| --- | --- | --- | --- |
| Introduction to Carbohydrates | 62.5 | 81.3 | 18.8 |
| Digestion | 0.0 | 87.5 | 87.5 |
| Transport | 6.3 | 50.0 | 43.8 |
| Glycolysis | 0.0 | 68.8 | 68.8 |
| Cellular metabolism | 12.5 | 56.3 | 43.8 |
| Fructose/galactose metabolism | 0.0 | 62.5 | 62.5 |
| Metabolism control points | 25.0 | 62.5 | 37.5 |
| Gluconeogenesis | 0.0 | 100.0 | 100.0 |
| Glycogen | 0.0 | 81.3 | 81.3 |
| Pentose Phosphate Pathway | 0.0 | 75.0 | 75.0 |
| Overall average | 10.6 | 72.5 | 61.9 |

### Interpreting Results

**Doctoral Level Comprehension:** Doctoral students must pass preliminary examinations covering knowledge in nutrition or hotel / restaurant management. This year we had one PhD student in nutrition and four doctoral students in hotel/restaurant management passed their preliminary examination. Five nutrition and five hotel/restaurant management doctoral students successfully completed their oral exam /defense. The final oral examination evaluated the student’s ability to critically evaluate data and concepts that have contributed to their research in nutrition or hotel/hospitality management. These results indicated that student possess knowledge in their appropriate field of study.

Regarding the minerals research paper there was a slight reduction in the average score form the assignment due to the poor performance of one student. Given the small sample size, one student can have a large impact on the data. The greatest area for concern was the score (11.25 out of 15 pts) in the Main Text section of the paper. In this section, the students reported on the key findings in the articles. The area with the greatest improvement was the Effective and Clear Communication section. The students in the course are required to write an abstract for which the instructor provides detailed feedback. The students are able to resubmit the abstract for a new grade. The feedback on the abstract was provided to the students at least 3 weeks prior to the deadline for the evaluation paper. This course design usually ensures that the students are well prepared to complete the evaluation paper assignment. Based on the results from 2017, the instructor will individually follow up with students that score less than 70% on the first submission so that the students are clear on the expectations for writing papers in the course.

**Oral Communication:** Overall, the doctoral level students did very well on this assignment. The overall average was around 95%. The two lowest scores were for the “Logically developed & arranged ideas” and the “Presented well-chosen studies/information” elements of the assignment. The instructor will provide strategies to the students in written form and orally to help them with the organization of the material for their presentations.

**Effective Writing:** Overall, the students writing appear solid. In the methods of research class proposal development, a large improvement from 2015-2016 class was observed. In both years, the class average is over 90%. With the minerals abstract, performances greatly improves (18.5 to 23.4 out of 25 points) from the first submission to the resubmission for the assignment. The greatest areas of improvement are in the “Introduction”, “Articulate the thesis statement”, “Main text”, and “Effective and clear communication” sections. The data demonstrates that providing detailed feedback on the first submission is an effective tool to improve performance. The instructor will continue to providing the feedback.

**Concepts of Human Macronutrient Metabolism:**  The pretest was given on the first day of class; the average score for the doctoral students was 10.6 out of 100. The same test was administered after the last day carbohydrates was covered as class material. The average score for the posttest for doctoral students averaged 70.6 out of 100. The average score on the posttest improved by about 60 percentage points as compared to the pretest for the doctoral students. In carbohydrate metabolism, the three topic areas on the posttest that had relatively high averaged scores for doctoral students were gluconeogenesis, digestion/absorption of carbohydrates, and Introduction to carbohydrates. The average score for these three topics were 100, 87.5, and 81.3, respectively. The topics of control of metabolic pathways, fructose and galactose metabolism, and cellular carbohydrate metabolism had the lowest scores, averaging 62.5, 62.5, and 56.3, respectively. Greater emphasis will be placed on these three topic areas the next time the class is taught.

### Communicating Results

[Please provide a very brief narrative describing with whom the results are shared (e.g., all program faculty).]

Assessment results were shared with all departmental faculty during regular meetings in Fall and Spring terms. At a following date, a dedicated meeting was scheduled to discuss the assessment report and results among departmental graduate faculty with the goal of identification of areas for student improvement on SLOs and the assessment process itself. Doctoral degree program assessments, informal feedback and observations were also shared with departmental faculty, head of the Department of Nutrition, Dietetics and Hospitality Management, and advisory boards’ members.

## Use of Results

### Purposeful Reflection and Action Plan

Several areas of improvement were identified at the department.

The department will encourage graduate students to present their work at external professional events and conferences. The goal is to further develop the delivery skills to wider audiences in addition to staying abreast of the latest in the field. To that end, the department will be providing additional support to students to be able to participate in these events.

There is some missing data on protein and lipids metabolism pretest and posttest. Collecting pretest and posttest data on protein and lipids will resume starting next year. This will make it easier to aggregate data.

To compare the assessments overtime and identify trends, it was decided that the department will use similar rubrics.

Topics already provided in the courses used in the current assessment report will be reinforced. Faculty teaching these courses will emphasize student-based activities to provide opportunities for practice and receiving feedback.

The department will add new internal assessment methods and develop additional rubrics to assess performance of student learning in multiple areas.

Departmental faculty teaching graduate courses will emphasize the importance of using additional direct measures, and collecting assessment data.