

## Nutritional Sciences (BS) - Reviewer's Report - Academic Data

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# Nutritional Sciences (BS)

## Nutritional Sciences BS Mission Statement

### Mission:

Food Science and Human Nutrition Department Mission The mission of the Food Science and Human Nutrition Department is to provide progressive and effective programs in teaching, research, and extension which meet the needs of the citizens of Florida, and benefit the nation. This mission is accomplished by faculty and staff through resident and distance instruction, research and extension. Nutritional Sciences Program Mission The mission of the Nutritional Science program at the University of Florida is to provide a progressive and effective program to educate students using a science-based nutrition curriculum to produce graduates who are competitive for health- or science-related careers or professional or graduate school. The mission of the Nutritional Sciences program reflects the mission of the university, the college and the department as it is focused on the importance of a high quality education, one of the three land grant missions referenced in all three statements. The mission also addresses preparing graduates for careers or further education, components of the mission of the college and the university.

**Program Type and Level:** Bachelor (includes all bachelors level degrees)

**Start:** 07/01/2021

**End:** 06/30/2022

**Program:** Nutritional Sciences (BS)

**Program CIP:** 30.1901

**Site Information:** On Campus (Residential)

**If Other Site :**

**Responsible Roles:** Joel Brendemuhl (brendj@ufl.edu)

## PG 1 Students enter graduate school/nutrition or health-related careers

### Goal:

To produce students who will successfully enter graduate or professional school, or pursue food, nutrition or health-related careers.

**Program:** Nutritional Sciences (BS)

### Evaluation Method:

- Data are gathered by staff in the Food Science and Human Nutrition (FSHN) Student Services office by interviewing, calling and emailing recent graduates with a post-graduation survey.
- A copy of the FSHN post-graduation survey instrument is attached. File name: "FSHN Post-Graduation Survey"
- Results below are based on all Nutritional Sciences graduates that responded to the survey.

### Results:

- Of the 23 survey respondents who graduated in August 2021, December 2021, or May 2022 as Nutritional Sciences majors:
  - 14 (61%) are taking a growth year to work and gain experience, with the intention of applying to professional school.
    - Of these, several are employed in the healthcare field as:
      - Medical Scribes (n=4)
      - Dental Assistants (n=3)
      - Patient Care Assistants (n=1)
      - Ophthalmic Technicians (n=1)
      - Pharmacy Technicians (n=1)
      - Medical Assistants (n=1)
    - One is employed as a Legal Assistant, with plans to apply to law school.
    - One is pursuing work in the restaurant industry, with plans to apply to dental school.
    - One is still exploring (undecided between pursuing PA school or pursuing a graduate degree in Food Science).
  - 5 (22%) are attending dental school, at the following institutions:
    - UF College of Dentistry
    - Nova Southeastern
    - Lecom (Bradenton)
    - Harvard School of Dental Medicine
    - University of Alabama at Birmingham
  - 1 (4%) is attending graduate school (respondent did not specify where)
  - 1 (4%) is attending medical school (Medical School for International Health at Ben Gurion University)
  - 1 (4%) is attending pharmacy school (UF College of Pharmacy)
  - 1 (4%) is attending PA school (respondent did not specify where)

- Survey response data (redacted) are available in the attached spreadsheet: “Nutritional Sciences 2021-2022 Plans After Graduation”
- Response rate: n=23 (21% of the Nutritional Sciences graduates)

## PG 2 Critical Thinking and Problem Solving Skills

**Goal:** Foster development of critical-thinking and problem-solving skills relevant to nutritional sciences.

**Program:** Nutritional Sciences (BS)

**Evaluation Method:**

- A question from the College of Agricultural and Life Sciences (CALs) Undergraduate Exit Survey that asks students’ to rate their perception of their ability to navigate change and ambiguity upon graduation is used to assess this program outcome.

**Results:**

- Assessed on a five point scale (1=Very Good, 5=Very Poor) the mean rating for navigating change and ambiguity upon graduation was 1.43, correlating to a rating of “Good” to “Very Good.”
- Response rate: n=42 (39% of the Nutritional Sciences graduates)
- Full aggregate survey results are attached (document entitled “Nutritional Sciences Undergraduate Exit Survey - Summer 21, Fall 21, Spring 22”), and the relevant excerpt is pasted below:

**Rate your perception of your ability in the following areas when you entered UF.**

**Rate your current perception of your ability in the following areas.**

Mean based on ratings of 1=Very Good, 2=Good, 3=Neutral, 4=Poor, 5=Very Poor.

<b>Nutritional Sciences</b>	<b>Mean when entered UF</b>	<b>Mean at graduation</b>	<b>Difference</b>	<b>CALS Average Difference</b>
Listened effectively	1.69	1.52	-0.17	-0.35
Communicated effectively (oral/written)	1.95	1.43	-0.52	-0.59
Recognized and responded to conflict	2.02	1.50	-0.52	-0.61
Accepted and applied critiques	2.00	1.40	-0.60	-0.68
Navigated change and ambiguity	2.10	1.43	-0.67	-0.83

## PG 3 Quality of Instruction

**Goal:** Maintain and enhance the quality of instruction in the department.

**Program:** Nutritional Sciences (BS)

**Evaluation Method:**

- A question from the College of Agricultural and Life Sciences (CALs) Undergraduate Exit Survey that asks about their satisfaction with the quality of instruction at the University of Florida is used to assess this program outcome.

**Results:**

- 35 out of 42 respondents were “satisfied” (n=17) or “very satisfied” (n=18) with the quality of instruction they received at the University of Florida for a percentage of 83%.
- Response rate: n=42 (39% of the Nutritional Sciences graduates)
- Full aggregate survey results are attached (document entitled “Nutritional Sciences Undergraduate Exit Survey - Summer 21, Fall 21, Spring 22”), and the relevant excerpt is pasted below:

**Are you satisfied with the quality of instruction you received at the University of Florida?**

	Very satisfied	Satisfied	Neutral	Dissatisfied	Very dissatisfied	Total Response Count
<b>Nutritional Sciences</b>	<b>18</b>	<b>17</b>	<b>3</b>	<b>2</b>	<b>2</b>	<b>42</b>
<b>CALS</b>	<b>244</b>	<b>200</b>	<b>40</b>	<b>13</b>	<b>13</b>	<b>510</b>

\*While responses to this question were overall positive, we were concerned that 10% of respondents were “dissatisfied” (n=2) or “very dissatisfied” (n=2) with the quality of instruction they received at the University of Florida. Reading through the free response section where students answered the question “What has been the most disappointing aspect of your undergraduate education at UF?” it appeared that much of the dissatisfaction stemmed from COVID-related challenges, as well as the rigor of pre-requisite courses beyond the control of our department.

## PG 4 Student Advising

**Goal:** Provide effective advising to students.

**Program:** Nutritional Sciences (BS)

**Evaluation Method:**

- The Undergraduate Coordinator collects data on time-to-graduation for all undergraduate students in the department.
- Also used to assess this program outcome is a question from the College of Agricultural and Life Sciences (CALs) Undergraduate Exit Survey that asks graduates to report the number of times they met with their primary academic advisor during a typical semester, and then to rate their academic advisor on “Provided quality service and was helpful.”

**Results:**

### Time to Graduation

- Of the **108** Nutritional Sciences students that graduated in August 2021, December 2021, and May 2022:
  - 77% (n=83) started at UF as freshmen
  - 19% (n=21) transferred to UF
  - 4% (n=4) started at UF as high school dual enrollment students
- Of those starting as freshmen:
  - 1% graduated in 2.5 years (n=1)
  - 1% graduated in 3 years (n=1)
  - 8% graduated in 3.5 years (n=7)
  - 76% graduated in 4 years (n=63)
  - 7% graduated in 4.5 years (n=6)
  - 4% graduated in 5 years (n=3)
  - The 2 remaining students had begun their studies at UF over a decade ago, and then returned to complete their bachelor’s degrees after a significant hiatus. From the time they started at UF to their graduation dates (including the years of hiatus), these students graduated in 11.5 years and 13.5 years, respectively.
- Of those transferring:
  - 5% graduated in 2 years (n=1)
  - 24% graduated in 2.5 years (n=5)
  - 29% graduated in 3 years (n=6)
  - 10% graduated in 3.5 years (n=2)
  - 33% graduated in 4 years (n=7)
- Of those starting as high school dual enrollment students:
  - 25% graduated in 4 years (n=1)
  - 50% graduated in 5 years (n=2)
  - 25% graduated in 6 years (n=1)
- Supporting data available in the attached spreadsheet: “Nutritional Sciences 2021-2022 Graduation Data”

### Academic Advisor Rating

- 40 out of 42 respondents reported meeting with their academic advisor at least once a semester for a percentage of 95%.
- Response rate: n=42 (39% of the Nutritional Sciences graduates)
- Full aggregate survey results are attached (document entitled “Nutritional Sciences Undergraduate Exit Survey - Summer 21, Fall 21, Spring 22”), and the relevant excerpt is pasted below:

## During a typical semester, how many times did you meet with your primary academic advisor to discuss some aspect of your educational experience or career plans?

	None	1	2	3 or more	Total Response Count
Nutritional Sciences	2	23	12	5	42
CALS	48	266	139	50	503

- For “Provided quality service and was helpful,” 40 out of 42 respondents rated their academic advisor as “good” (n=4) or “very good” (n=36) for a percentage of 95%.
- Response rate: n=42 (39% of the Nutritional Sciences graduates)
- Full aggregate survey results are attached (document entitled “Nutritional Sciences Undergraduate Exit Survey - Summer 21, Fall 21, Spring 22”), and the relevant excerpt is pasted below:

## Rate your primary academic advisor on “Provided quality service and was helpful”.

	Very good	Good	Neutral	Poor	Very poor	Total Response Count
Nutritional Sciences	36	4	1	1	0	42
CALS	354	84	40	9	10	497

### SLO 1 Content

#### Outcome:

Use knowledge of nutrient functions and food sources and physiological systems to determine nutrient and dietary needs of individuals in various life cycle stages and/or with nutrition-related diseases.

**SLO Area (select one):** Content (UG)

**Assessment Methods Checklist:** Faculty developed examination(s)/test(s)

**Assessment Method Narrative:**

**SLO Not Assessed This Year:**

**Threshold of Acceptability:** 80

**How many students did you assess for this outcome?:** 156

**How many students met the outcome?:** 131

**What percentage of students met the outcome?:** 84

**Does this meet your threshold of acceptability?:** Yes

#### Results:

#### Findings:

Please see semester exams and grades (redacted), attached.

Students successfully learned to use knowledge of nutrient functions and food sources and physiological systems to determine nutrient and dietary needs of individuals in various life cycle stages and/or with nutrition-related diseases.

#### Effectiveness of Assessment Method:

This SLO is assessed with three semester exams that are given in HUN4221 (Nutrition and Metabolism). This course is a capstone course for the Nutritional Sciences major, where students integrate knowledge of food, human dietary needs, pathophysiology, biochemistry, nutrient metabolism, cellular/physiological systems, and data interpretation. The three semester exams that the students take in this course are designed to assess content knowledge, as well as their ability to think critically and synthesize complex concepts. Due to the large number of students in the course, historically exams have been multiple-choice only. However, we recognized that while multiple choice questions could be effective, our assessment would be even more robust and well-rounded if we also included other question styles. Therefore, in addition to the multiple choice questions, we are now including several free-response questions on each exam. This allows students to explain their thinking, and provides the instructor with deeper and more nuanced insight on students’ understanding.

It also allows the instructor to award partial credit when appropriate. With the recent addition of new faculty and some rearrangement in teaching assignments, we are now offering an additional section of the course as well, which has reduced class sizes and made it more feasible to grade free-response exam questions.

Learning Strengths and Weaknesses:

Faculty that teach in the Nutritional Sciences program have noted that while students are generally strong in their knowledge of nutrient needs for individuals at various life cycle stages and with nutrition-related diseases, one area they tend to struggle with is remembering gastrointestinal (GI) anatomy and physiology. They are introduced to basic GI physiology in HUN2201 (Fundamentals of Human Nutrition), and they are also required to take APK2105C (Applied Human Physiology with Lab). However, GI physiology is not a major emphasis in APK2105C, and by the time students get to their upper division nutrition courses, it has often been a few semesters since they have taken HUN2201. One of the ways we have addressed this challenge is by building in time in our HUN4445 course (Nutrition and Disease 1) to review digestive physiology, and to ensure concepts are continually reinforced in HUN4446 (Nutrition and Disease 2). Reviewing and reinforcing GI anatomy and physiology dovetails nicely with the topics covered in the Nutrition and Disease sequence (enteral nutrition, diseases of the GI tract, etc.), and helps students to be more confident with these concepts when they get to HUN4221.

## SLO 2 Content

**Outcome:** Use knowledge of biochemical processes and nutrient functions to interpret effects of changes in nutrient availability.

**SLO Area (select one):** Content (UG)

**Assessment Methods Checklist:** Faculty developed examination(s)/test(s)

**Assessment Method Narrative:**

**SLO Not Assessed This Year:**

**Threshold of Acceptability:** 80

**How many students did you assess for this outcome?:** 156

**How many students met the outcome?:** 131

**What percentage of students met the outcome?:** 84

**Does this meet your threshold of acceptability?:** Yes

**Results:**

Findings:

Please see semester exams and grades (redacted), attached.

Students successfully learned to use knowledge of biochemical processes and nutrient functions to interpret effects of changes in nutrient availability.

**Effectiveness of Assessment Method:**

As mentioned above, the three semester exams that the students take in HUN4221 (Nutrition and Metabolism) are designed to assess content knowledge, as well as their ability to think critically and synthesize complex concepts. This year, in addition to multiple choice questions, we also added a few free-response questions to each exam, which has enhanced the effectiveness of the assessment by allowing instructors to gain deeper and more nuanced insight on students' understanding.

Learning Strengths and Weaknesses:

One challenge relevant to this SLO is the fact that for many years, the Biochemistry course offered in our department (BCH3025) has been taught online only. While many students thrive with this format, there are also many who struggle to grasp complex biochemical processes in an online-only environment. Some of our Nutritional Sciences students opt to take the higher-level BCH4024 (Introduction to Biochemistry and Molecular Biology) offered by the College of Medicine. However, we recognized a need for an in-person section of BCH3025 to meet the needs of students who preferred to take the 3000-level course through our department, but who preferred face-to-face instruction. With the recent addition of new faculty, we will now be able to offer an in-person section of BCH3025 beginning in the 2022-23 academic year. We anticipate this will strengthen students' fundamental understanding of biochemistry, setting them up for a smooth and successful transition to HUN4221.

## SLO 3 Content

**Outcome:** Integrate knowledge of biological principles to interpret emerging knowledge of cellular and physiological systems.

**SLO Area (select one):** Content (UG)

**Assessment Methods Checklist:** Faculty developed examination(s)/test(s)

**Assessment Method Narrative:**

**SLO Not Assessed This Year:**

**Threshold of Acceptability:** 80

**How many students did you assess for this outcome?:** 156

**How many students met the outcome?:** 131

**What percentage of students met the outcome?:** 84

**Does this meet your threshold of acceptability?:** Yes

**Results:**

Findings:

Please see semester exams and grades (redacted), attached.

Students successfully learned to integrate knowledge of biological principles to interpret emerging knowledge of cellular and physiological systems.

Effectiveness of Assessment Method:

As mentioned above, the three semester exams that the students take in HUN4221 (Nutrition and Metabolism) are designed to assess content knowledge, as well as their ability to think critically and synthesize complex concepts. This year, in addition to multiple choice questions, we also added a few free-response questions to each exam, which has enhanced the effectiveness of the assessment by allowing instructors to gain deeper and more nuanced insight on students' understanding.

Learning Strengths and Weaknesses:

One challenge we have noted in teaching metabolic and biochemical processes is that sometimes students struggle to relate what happens at the molecular level to tangible clinical outcomes and personal experiences. That is one of the reasons we feel this particular SLO is so important – we want students to be able to apply fundamental biological and biochemical knowledge to make sense of what they see in the world around them. An emphasis on application and interpretation is key. Thus, throughout the Nutritional Sciences curriculum, we strive to integrate clinical examples and scenarios that students can relate to. For instance, in our HUN4445 course (Nutrition and Disease 1), one of the topics we cover is critical care. In light of the COVID-19 pandemic over the past two years, we have included discussions of the metabolic and physiological changes that occur with severe COVID-19 infection, as well as current clinical practice guidelines for critically ill patients with COVID-19.

## **SLO 4 Critical Thinking**

**Outcome:** Analyze data and interpret results in the nutritional sciences.

**SLO Area (select one):** Critical Thinking (UG)

**Assessment Methods Checklist:** Faculty developed examination(s)/test(s)

**Assessment Method Narrative:**

**SLO Not Assessed This Year:**

**Threshold of Acceptability:** 80

**How many students did you assess for this outcome?:** 156

**How many students met the outcome?:** 131

**What percentage of students met the outcome?:** 84

**Does this meet your threshold of acceptability?:** Yes

**Results:**

Findings:

Please see semester exams and grades (redacted), attached.

Students successfully learned to analyze data and interpret results in the nutritional sciences.

Effectiveness of Assessment Method:

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As mentioned above, the three semester exams that the students take in HUN4221 (Nutrition and Metabolism) are designed to assess content knowledge, as well as their ability to think critically and synthesize complex concepts. This year, in addition to multiple choice questions, we also added a few free-response questions to each exam, which has enhanced the effectiveness of the assessment by allowing instructors to gain deeper and more nuanced insight on students' understanding.

Learning Strengths and Weaknesses:

Interpreting data can be a challenging skill for students to learn. However, throughout the Nutritional Sciences curriculum, original literature is assigned and discussed prominently within many of our courses. This helps students to develop a level of comfort with reading the scientific literature, and critically evaluating the methods of data analysis and the interpretation of results.

## **SLO 5 Communication**

**Outcome:**

Create, interpret and analyze written text, oral messages, and multimedia presentations used in Agricultural and Life Sciences.

**SLO Area (select one):** Communication (UG)

**Assessment Methods Checklist:** Non-exam Course assignment(s)

**Assessment Method Narrative:**

**SLO Not Assessed This Year:**

**Threshold of Acceptability:** 80

**How many students did you assess for this outcome?:** 178

**How many students met the outcome?:** 164

**What percentage of students met the outcome?:** 92

**Does this meet your threshold of acceptability?:** Yes

**Results:**

Students successfully learned to create, interpret and analyze written text, oral messages and multimedia presentations used in Agricultural and Life Sciences.

Specifically:

- 32 NUT students took AEC 3030C.
  - Assignment 1 – 29/32 satisfactory (91%)
  - Assignment 5 – 30/32 satisfactory (94%)
  - Assignment 7 – 30/32 satisfactory (94%)
  - This meets the Threshold of acceptability (80%)
- 41 NUT students took AEC 3033C.
  - Assignment 5 – 38/41 satisfactory (93%)
  - Assignment 6 – 37/41 satisfactory (90%)
  - This meets the Threshold of acceptability (80%)

## **BS - Nutritional Sciences**

**Improvement Types Checklist:** Modified one or more SLO assessment methods.

Modified one or more courses.

**Use of Results for Improvement Narrative - Required:**

Faculty who teach undergraduate nutritional sciences students reviewed this report, and we are satisfied with our outcomes. Based on the review of the data it was decided that no changes in the actual program goals or SLOs were necessary. However, we did make a few notable course modifications to address some of the learning weaknesses we identified. Specifically, we have built in time in our HUN4445/4446 (Nutrition and Disease) sequence to review and reinforce principles of gastrointestinal anatomy and physiology; added a face-to-face section of BCH3025 (Fundamentals of Biochemistry) to better serve students who prefer in-person instruction; and added a section of HUN4221 (Nutrition and Metabolism) to reduce class sizes.

In addition, the exception that the College of Agricultural and Life Sciences had related to the communication SLO and the use of courses grades has been terminated. Therefore, in lieu of courses grades, non-exam course assignments were used in AEC 3033C (assignments 5 and 6) and in AEC 3030C (assignments 1, 5 and 7). A minimum score of 73% on each assignment was deemed satisfactory.

**Program Results Not Reported This Year:**

**Program Results Reporting Complete:** true

## **Nutritional Sciences BS AAP Detail**

**Providing Department:** Nutritional Sciences (BS)

**Assessment Cycle:**

Analysis and Interpretation: April-May of each year

Improvement Actions: Completed by January 31 of each year

Dissemination: Completed by January 31 of each year

Year	20-21	21-22	22-23	23-24	24-25	25-26
<b>SLOs</b>						
<b>Content Knowledge</b>						
#1	X	X	X	X	X	X
#2	X	X	X	X	X	X
#3	X	X	X	X	X	X
<b>Critical Thinking</b>						
#4	X	X	X	X	X	X
<b>Communication</b>						
#5	X	X	X	X	X	X

**SLO Assessment Rubric:**





**Introduction and Literature Review (75 points)**

<b>Item</b>	<b>Unacceptable</b>	<b>Acceptable</b>	<b>Superior</b>	<b>Pts Available</b>	<b>Pts Earned</b>
<b>"So What" question and need for research</b>	An introduction and literature review that needs extensive revisions to appropriately answer the "so what" question and describe the need for research <b>(0-7points)</b>	An introduction and literature review that satisfies most of these requirements, but could do more to answer the "so what" question, describe the need for research, or provide more supporting literature <b>(8-15 points)</b>	An introduction and literature review that meets professional requirements, answers the "so what" questions and describes the need for the research, is supported by literature <b>(16-20 points)</b>	<b>20</b>	
<b>Content and Detail</b>	An introduction and literature review that needs extensive revisions to demonstrate adequate content and detail <b>(0-7 points)</b>	An introduction and literature review that satisfies most of these requirements, but could benefit from additional content and detail <b>(7.5-10 points)</b>	An introduction and literature review that meets professional requirements, provides adequate content and detail, is supported by literature <b>(11-15 points)</b>	<b>15</b>	
<b>Grammar / Mechanics / Formatting / Page Length</b>	An introduction and literature review that has more than 6 grammar/mechanical mistakes, or the type or amount of mechanical, rhetorical, or formatting errors that would distract readers, length of document is 1/2 page or less <b>(0-8 points)</b>	An introduction and literature review that has between 3 and 6 grammar/mechanical mistakes, does not contain appropriate formatting, and is short of being 1 page long <b>(9-15 points)</b>	An introduction and literature review that has less than 3 grammar/mechanical mistakes, is formatted appropriately, and has an appropriate page length <b>(16-20 points)</b>	<b>20</b>	
<b>Sources</b>	Three or less of the required sources included, does not meet all requirements for each source level, all source not cited in-text or included on reference page <b>(0-5 points)</b>	Four of the required five sources included, or five sources included but does not meet the some requirements for each source level <b>(6-8 points)</b>	At least 5 sources included (at least 2 specialized/government sources, 2 trade/business sources, and 1 popular media source) both in in-text citations and on the reference page, no excessive use of direct quotes <b>(9-10 points)</b>	<b>10</b>	
<b>APA Style</b>	Correct APA style in-text citations and reference sheet with more than 6 errors <b>(0-4points)</b>	Correct APA style in-text citations and reference sheet with 6 or less errors <b>(5-7 points)</b>	Correct APA style in-text citations and reference sheet with 3 or less errors <b>(8-10 points)</b>	<b>10</b>	

Total Points	75	
<b>Assignments submitted late (-10% each day)</b>		
<b>File not named correctly (-10%)</b>		
<b>Total Points Earned</b>		
Comments:		

**Assessment Oversight:**

Name	Department Affiliation	Email Address	Phone Number
Laura Acosta	Food Science and Human Nutrition Undergraduate Coordinator	ljacosta@ufl.edu	352-294-3710
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Anne Mathews	Undergraduate Committee Member, Food Science and Human Nutrition	anne.mathews@ufl.edu	352-294-3719

**Methods and Procedures - Undergraduate and All Certificate Programs:**

SLO Assessment Matrix

Student Learning Outcome	Assessment Method	Measurement Procedure
Use knowledge of nutrient functions and food sources and physiological systems to determine nutrient and dietary needs of individuals in various life cycle stages and/or with nutrition-related diseases.	Three Exams	Exam score
Use knowledge of biochemical processes and nutrient functions to interpret effects of changes in nutrient availability.	Three Exams	Exam score
Integrate knowledge of biological principles to interpret emerging knowledge of cellular and physiological systems.	Three Exams	Exam score
Analyze data and interpret results in the nutritional sciences.	Three Exams	Exam score
Create, interpret and analyze written text, oral messages, and multimedia presentations used in Agricultural and Life Sciences.	Papers and Speeches graded by rubric	Rubric

Three examinations are administered in HUN 4221, Nutrition and Metabolism, the final culminating course in the Nutritional Sciences specialization. The examinations were reviewed by the Nutritional Sciences faculty to confirm that they constitute an adequate assessment of the SLOs. Each question on each examination is aligned with the content or critical-thinking SLOs and then the item analysis for each question is examined to assess how students perform. Summary statistics are calculated for performance on the questions aligned with each SLO. Grades in oral communication and technical writing courses are used to assess achievement of the communication SLO. In the technical writing courses all of the points awarded are for written work that is graded by rubric. In the oral communications courses all but 5% of the points awarded are based on oral presentations that are graded by rubric. A report of grades in these courses is provided to the Undergraduate Coordinator each semester by the college Dean's Office. These are summarized in a table. An annual meeting is held in January with the Nutritional Sciences faculty to review results and determine whether curriculum changes are needed. A sample rubric used for assessment of a literature review completed for the communication SLO is provided as an attachment.

Indirect assessment of student learning is conducted by monitoring placement into professional and graduate school and employment and student satisfaction with quality of instruction, preparedness for their future positions, and development of critical-thinking, problem-solving and scientific inquiry skills.

**Curriculum Map - Undergraduate Degree Programs:**

Key: Introduced Reinforced Assessed

Courses SLOs	HUN 2201	HUN 3403	BCH 3025	HUN 4445	HUN 4446	HUN 4221	AEC 3030C	AEC 3033C
<b>Content Knowledge</b>								
#1	I	R	R	R	R	A = Three Exams		
#2	I	R	R	R	R	A = Three Exams		
#3	I		R	R	R	A = Three Exams		
<b>Critical Thinking</b>								
#4	I	R	R	R	R	A = Three Exams		
<b>Communication</b>								
#5							I, R, A=Speeches graded by rubric	I, R, A=Papers graded by rubric

**Research :**

**SLO Measures - Graduate and Professional Programs:**

**Assessment Timeline - Graduate and Professional Programs:**