

Introduction to the Human Nutrition and Food Science Foods and Nutrition Program and the Assessment Plan (updated July 2008)

A. Program Mission/Vision

1. (Update May 2008) –The Food and Nutrition Major (FN) is based on the Food and Nutrition Board (FNB) of the Institute of Medicine of the National Academy of Sciences. The FNB is a multidisciplinary group of biomedical scientists with expertise in various aspects of nutrition, food science, biochemistry, medicine, public health, epidemiology, food toxicology, and food safety. The FN major trains students for careers pertaining to the diverse issues of food, nutrition and health. With the quickening pace of technological changes in our food supply and increasing understanding of how food affects our health, it is imperative that FN majors are able to examine and evaluate the complex interrelationships of food, food safety and nutrition issues of central importance to health policy. HNFS envisions its students to be in an excellent position to examine and provide guidance on issues of food and health today and into the 21st century.

FN prepares students for careers in dietetics and nutrition science. The Dietetics Option is a nationally accredited program adhering to guidelines established by the Commission on Accreditation of Dietetic Education (CADE). Students pursuing career goals in the dietetic field will qualify for post-graduate dietetic internship programs which can lead to membership in the American Dietetic Association and Registered Dietitian status. Upon completion of a dietetic internship, graduates are eligible to take the registration examination to become Registered Dietitians. Dietitians are members of the professional health care team and serve as facilitators who translate scientific knowledge into practical applications so that consumers and patients can make informed decisions about their diet and health.

Nutritional Science is an option under the Foods and Nutrition Major that integrates the core nutrition science courses with additional courses in the laboratory sciences. The mission of the program is that the Nutrition Science Program will provide a program of study necessary to enter medical, dental, veterinary, Pharm D Schools and Graduate programs for the Master of Science, and PhD. The Nutrition Science Program will promote an appreciation for the multidiscipline nature of modern nutrition research. The program prepares students with a sound scientific understanding of complex nutrition issues related to research and medicine.

B. Curriculum and instructional methods FN uses to accomplish program objectives (i.e. Internships; capstone courses, course sequences, research projects, independent study, service learning etc). –

a. May 2007 - Dietetics and Nutrition Science share major core courses in nutrition science: Nutrition, Introduction to Research Methods, Nutrition of the Life cycle, Nutrient-Drug Interactions; Advanced Nutrient Metabolism I, II and III and Medical Nutrition Therapy. Dietetics student take one year of Foodservice Systems and

Management, obtain service learning experiences in Nutrition Education and Community Nutrition. Nutrition science pursues additional elective courses in basic sciences (Chemistry, Biology, and Physics). Nutrition science students are allowed to also focus in key interdisciplinary sciences commonly utilized in nutrition research: clinical sciences and biochemistry, molecular biology, animal nutrition, food science and technology, community nutrition, and kinesiology. A capstone experience is in an independent study or senior project AG 481/482 project. HNFS faculty incorporate all accepted methodologies in instruction ranging from standard lecture format to team building activities, oral and written presentations, field trips, service learning, online exercises, case studies, in-depth critical thinking exams.

b. Changes through July 2008. Curriculum changes include: 1. Implementation of a C minimum grade in key prerequisite courses; 2. Rigorous enforcement of prerequisite courses; 3. Expanded units in three courses from 2 to 4 units (FN 263 Introduction to Research) and 2 to 3 units (FN 345 and 346 lecture-Nutrition Education and Community Nutrition, respectively). 3. Created and proposed two new courses one Evaluation of Alternative Medicine and one of Nutrigenetics (due Fall 2008). HNFS established a course sequence FN 263 Introduction to Research Methods will be a prerequisite for FN 343 Nutrient Drug Interaction and that a prerequisite for FN 4XX (proposed Evaluating Alternative Medicine Course).

c. Status of FN current updates as a results of previous assessment cycle.

a. as of May 2007 for any previously completed student learning outcome assessment during the 2006-2007 academic year - The changes outlined in b. above are in response to indirect assessment from graduating students from 2002-2008, from direct assessment of course Student Learning outcomes (SLOs) from 2004 to 2008, and in response to the new education guidelines from the national accrediting agency (Commission on Accreditation of Dietetic Education, CADE).

(b. as of May 2008 for May 2007 cycle – to be added in May 2008) See above both are together.

CHAPTER 1. Program Objective #1 and Student Learning Outcomes (SLO) (May 2007)

1.1.a Program Objective #1

Describe the role of essential nutrients in health promotion and disease prevention.

1.1.b.1. Student Learning Outcomes for Program Objective #1 (May 2007)

1. Describe the Therapeutic Lifestyle Change (TLC) diet and to use the TLC diet to counsel individuals in order to improve their blood lipid profiles.
2. Describe the Dietary Approaches to Stop Hypertension (DASH) diet and to use the diet to counsel individuals who need to control their high blood pressure.
3. Describe and utilize the three-part program developed by the US government, including the Dietary Guidelines for Americans, MyPyramid.gov and the Nutrition Label, to improve the health of targeted populations.
4. List the Dietary Reference Intakes (DRIs) for the macronutrients and micronutrients and utilize the DRIs to assess diets and make dietary recommendations.
5. Describe the most likely nutritional deficiencies of at-risk groups in the United States and to identify dietary sources of nutrients that can reverse these deficiencies. The student will become familiar with the DHHS “Healthy People: Nutrition Objectives for the Nation” (current version 2010).

1.2 Student Learning Outcome-Curriculum Alignment Matrix for Program Objective #1 (May 2007)

For each SLO identify in which courses are the SLOs introduced, practiced and mastered.

I = outcome is introduced **P** = outcome is practiced **M** = Outcome is Mastered

Course (number and title)	1: <i>Describe</i> the Therapeutic Lifestyle Change (TLC) diet and <i>use</i> the TLC diet to <i>counsel</i> individuals to improve their blood lipid profiles.	2: <i>Describe</i> the Dietary Approaches to Stop Hypertension (DASH) diet and <i>use</i> the diet to <i>counsel</i> individuals who need to control their high blood pressure.	3: <i>Describe</i> and <i>utilize</i> the three-part program developed by the US government, including the Dietary Guidelines for Americans, MyPyramid.gov and the Nutrition Label, to <i>improve</i> the health of targeted populations.	4: <i>List</i> the Dietary Reference Intakes (DRIs) for the macronutrients and micronutrients and <i>utilize</i> the DRIs to <i>assess</i> diets and make dietary <i>recommendations</i> .	5: <i>Describe</i> the most likely nutritional deficiencies of at-risk groups in the United States and <i>identify</i> dietary sources of nutrients that can reverse these deficiencies.
FN 235: Nutrition	I (Describe)	I (Describe)	I (Describe)	I (List)	I (describe and identify)
FN 328/328L Cultures and Meal Patterns	P (use)	P (use)	P (use and improve)		I (Describe and identify)
FN 335 Nutrition of the Life Cycle	P (Describe)		P (use and improve)	P (List, utilize and recommend)	P (Describe and identify)
FN 345/345L	P (Counsel)	P (counsel)	P (use and improve)	P (List, utilize and recommend)	
FN 433 Advanced Nutrient Metabolism I	M (Describe)				

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FN 434 Advanced Nutrient Metabolism II					P (Describe and identify)
FN 435 Advanced Nutrient Metabolism III		M (Describe and identify)			P (Describe and identify)
FN 443/443L Medical Nutrition Therapy !	M (Describe and counsel)	M (Describe and identify and use)	M (Describe, use and improve)	M (List, utilize and recommend)	M (Describe and identify)
FN 444/444L Medical Nutrition Therapy II	M (Describe and Counsel)	M (Describe and identify and use)	M (Describe, use and improve)	M (List, utilize and recommend)	M (Describe and identify)

No change in 2008

1.3. Assessment Tools/ Performance Criteria/ Targets for SLOs for Program Objective #1 (May 2007)

1.3.1. SLO #1 – Describe the Therapeutic Lifestyle Change (TLC) diet and use the TLC diet to counsel individuals to improve their blood lipid profiles (May 2007).

a. Assessment tools: Embedded exam questions (I, P), case study (P,M), lab exercises (P,M).

b. Performance criteria for Mastery: Case study assignment focusing on a patient at risk of heart disease. Student will develop a seven day cycle of menus based on the TLC diet for an individual identified as having an undesirable, at-risk blood lipid profile. Student will suggest additional lifestyle change strategies to decrease heart disease risk.

c. Target of expected performance: 90% of students will demonstrate satisfactory (70%) and 75% of students will demonstrate mastery (grade of ≥ 80 on assignment) of TLC diet planning and $> 90\%$ of students will meet satisfactory (70%).

d. Notes/justification: no change in 2008

1.3.2. SLO #2 – Describe the Dietary Approaches to Stop Hypertension (DASH) diet and use the diet to counsel individuals who need to control their high blood pressure.(May 2007)

a. Assessment tools: Embedded exam questions I, P and M), case study (P,M), lab exercises (P,M).

b. Performance criteria for Mastery: Student will develop a seven day cycle of menus based on the DASH diet for an individual identified as having hypertension. Student will suggest additional lifestyle change strategies to decrease hypertension.

c. Target of expected performance: 90% of students will demonstrate satisfactory (70%) and 75% of students will demonstrate mastery (grade of ≥ 80 on assignment) of DASH diet planning.

d. Notes/justification: no change in 2008.

1.3.3. SLO #3 – Describe and utilize the three-part program developed by the US government, including the Dietary Guidelines for Americans, MyPyramid.gov and the Nutrition Label, to improve the health of targeted populations (May 2007).

a. Assessment tools: embedded exam questions (I,P) Nutrition education/curriculum development assignment (P,M).

b. Performance criteria for mastery: Student will develop a three-session (thirty minutes each) series of lesson plans to teach a group of adults how to utilize the Dietary Guidelines for Americans, the MyPyramid.gov web site, and the Nutrition label to choose a healthy and balanced diet.

c. Target of expected performance: 90% of students will demonstrate satisfactory (70%) and 75% of students will demonstrate mastery (grade of ≥ 80 on assignment) of DASH diet planning.

d. Notes/justification: no change in 2008

1.3.4. SLO #4 – List the Dietary Reference Intakes (DRIs) for the macronutrients and micronutrients and utilize the DRIs to assess diets and make dietary recommendations (May 2007).

a. Assessment tools: embedded exam questions (I,P), diet analysis projects (P), projects and case studies (M).

b. Performance criteria for mastery: Students will carry out two dietary analysis projects, a dietary self-analysis and an analysis of the diet of another person, utilizing diet analysis software to determine diet adequacy based on the DRIs and to create a diet plan to remedy any significant deviations from the DRIs.

c. Target of expected performance: 90% of students will demonstrate satisfactory (70%) and 75% of students will demonstrate mastery (grade of ≥ 80 on assignment) of in utilizing diet analysis software and the DRIs to analyze dietary adequacy.

d. Notes/justification: no change in 2008.

1.3.5.a. SLO #5 – Describe the most likely nutritional deficiencies of at-risk groups in the United States and to identify dietary sources of nutrients that can reverse these deficiencies. The student will become familiar with the DHHS “Healthy People: Nutrition Objectives for the Nation-version 2010” (May 2007).

a. Assessment tools: embedded exam questions (I,P), diet analysis projects (P), population assessment project (M).

b. Performance criteria for mastery: Student will identify a population, assess that population’s nutrition needs, and develop an intervention plan based upon the assessment and the Healthy People Objectives.

c. Target of expected performance: 90% of students will demonstrate satisfactory (70%) and 75% of students will demonstrate mastery (grade of ≥ 80 on assignment) in assessing populations and developing intervention plans.

d. Notes/justification: no change in 2008

1.4. Results, Analysis and Recommendations for Program Objective #1 (May 2007)

Provide the measurable results (data), an analysis (interpretations) and recommendations for general curricular changes (continue data collection, change matrices, develop new course, etc.) related to each SLO for data collected during 2006-2007. (Specific changes to be recorded in Section 1.5)

1.4.1. SLO #1 –*Describe* the Therapeutic Lifestyle Change (TLC) diet and *use* the TLC diet to *counsel* individuals to improve their blood lipid profiles (May 2007).

a. Results

b. Analysis: NOTE: HNFS' position on assessment is to collect trend data before modifying curriculum. Currently HNFS is operating on a 5 year assessment period. These SLOs are consistent with student skills and knowledge required by CADE (accreditation agency for the FN program) but is much more specific. They will be analyses across the courses and in the designated capstone course(s) at the end of a five year period unless periodic review alerts HNFS to a series problem.

c. Recommendations:

1.4.2. SLO #2– *Describe* the Dietary Approaches to Stop Hypertension (DASH) diet and *use* the diet to *counsel* individuals who need to control their high blood pressure.(May 2007)

a. results

b. analysis

c. recommendations

1.4.3. SLO #3– *Describe* and *utilize* the three-part program developed by the US government, including the Dietary Guidelines for Americans, MyPyramid.gov and the Nutrition Label, to improve the health of targeted populations (May 2007).

a. results

b. analysis

c. recommendations

1.4.4. SLO #4– *List* the Dietary Reference Intakes (DRIs) for the macronutrients and micronutrients and *utilize* the DRIs to assess diets and make dietary recommendations (May 2007).

a. results

b. analysis

c. recommendations

1.4.5. SLO #5– *Describe* the most likely nutritional deficiencies of at-risk groups in the United States and to *identify* dietary sources of nutrients that can reverse these deficiencies. The student will become familiar with the DHHS “Healthy People: Nutrition Objectives for the Nation-version 2010” (May 2007).

a. results

b. analysis

c. recommendations

1.5. Curricular Changes for Program Objective #1 (May 2007)

Describe the curricular changes you will be making in specific courses related to each SLO:

NOTE: HNFS will not make curricular changes based on a short term student performance on any one particular SLO. If any one SLO is not satisfactory that SLO will first be addressed within the relevant course or courses first then if necessary a systemic approach would be warranted.

1.5.1.a SLO #1 Describe the Therapeutic Lifestyle Change (TLC) diet and use the TLC diet to counsel individuals to improve their blood lipid profiles (May 2007). May 2007- none

1.5.2.a SLO #2 Describe the Dietary Approaches to Stop Hypertension (DASH) diet and use the diet to counsel individuals who need to control their high blood pressure. (May 2007)-none

1.5.3.a SLO #3 Describe and utilize the three-part program developed by the US government, including the Dietary Guidelines for Americans, MyPyramid.gov and the Nutrition Label, to improve the health of targeted populations (May 2007).

1.5.4.a SLO #4 – List the Dietary Reference Intakes (DRIs) for the macronutrients and micronutrients and utilize the DRIs to assess diets and make dietary recommendations (May 2007). none

1.5.5.a SLO #5 Describe the most likely nutritional deficiencies of at-risk groups in the United States and to identify dietary sources of nutrients that can reverse these deficiencies. The student will become familiar with the DHHS “Healthy People: Nutrition Objectives for the Nation-version 2010” (May 2007). none

1.6 Other Forms of Assessment for Program Objective #1 (May 2007

Describe any other forms of assessment that you are using to validate any of your SLOs:

1.6.1. SLO #1 through # 5: Most if not all of these SLOs and more than these were assessed in different stated forms based on CADE specified skills and knowledge statements(http://www.csupomona.edu/~hnfs/documents/CADEKnowledgeandSkillsCourse_mapping2008.pdf) in both indirect assessment via student completed surveys at graduation and direct assessment within specified courses for any one particular skill. This assessment plan (<http://www.csupomona.edu/~hnfs/documents/DepartmentofNutritionassessmentplan2008.pdf>) has been in place from 2002 to 2008.

CHAPTER 2. Program Objective #2 and Student Learning Outcomes (SLO) (May 2007)

2.2.a Program Objective #2 (2007)

Describe the role of bioactive non-nutrients in health promotion and disease prevention.

2.2.b. Student Learning Outcomes for Program Objective #2 (2007)

1. Define the term phytochemical, identify the major classes of phytochemicals, and describe the key mechanisms by which phytochemicals can provide protection against chronic diseases such as heart disease and cancer.
2. Describe the progression of scientific research, the hierarchy of evidence, and to utilize an evidence-based approach to evaluate the use of phytochemicals in the prevention and treatment of human disease.
3. Describe the potential interactions between any and all of the following: essential nutrients, drugs, phytochemicals, and medicinal herbs.

2.2 SLO-Curriculum Alignment Matrix for Program Objective #2 (May 2007)

I = outcome is introduced **P** = outcome is practiced **M** = Outcome is Mastered

Course (number and title)	1. Define the term phytochemical, identify the major classes of phytochemicals, and describe the key mechanisms by which phytochemicals can provide protection against chronic diseases such as heart disease and cancer.	2. Describe the progression of scientific research, the hierarchy of evidence, and to utilize an evidence-based approach to evaluate the use of phytochemicals in the prevention and treatment of human disease.	3. Describe the potential interactions between any and all of the following: essential nutrients, drugs, phytochemicals, and medicinal herbs.
FN 235 Nutrition	I (Define)		
FN 263 Introduction to Research Methods		I (Describe)	
FST 325 Food Safety and Current Issues	P (Define)		
FN 335 Nutrition of the Life Cycle	P (Define)		
FN 343 Nutrient-Drug Interactions	P,M (Define, Describe)	P (Describe, utilize)	I, P (Describe)

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FN 433 Advanced Nutrient Metabolism I	P (Define, Describe)		
FN 434 Advanced Nutrient Metabolism II	P (Define, Describe)		
FN 435 Advanced Nutrient Metabolism III	P (Define, Describe)		
FN 443/443L Medical Nutrition Therapy	M (Define, Describe)	M (Describe, Utilize)	M (Describe)
FN 444/444L Medical Nutrition Therapy	M (Define, Describe)	M (Describe, Utilize)	M (Describe)

2.3. Assessment Tools/ Performance Criteria/ Targets/ for Program Objective #2 (May 2007)

2.3.1. SLO #1 Define the term phytochemical, identify the major classes of phytochemicals, and describe the key mechanisms by which phytochemicals can provide protection against chronic diseases such as heart disease and cancer.

a. Assessment tools: embedded exam questions

b. Performance criteria for mastery: Students will be able to 1: list and demonstrate examples of the major phytochemical classes and 2. describe potential mechanisms of phytochemical protection.

c. Target of expected performances: 90% of students will demonstrate satisfactory (70%) and 75% of students will demonstrate mastery (grade of ≥ 80 on assignment).

d. Notes/justification: no change in 2008

2.3.2. SLO #2 – Describe the progression of scientific research, the hierarchy of evidence, and to utilize an evidence-based approach to evaluate the use of phytochemicals in the prevention and treatment of human disease.

a. Assessment tools: embedded exam questions, library search assignments, experiments, research paper.

b. Performance criteria for mastery: Students will search appropriate data bases for a minimum of 5 peer reviewed research articles on a mutually agreed upon topic. Student will critically review articles based upon established criteria and write a critical review of the topic area.

c. Target of expected performances: 90% of students will demonstrate satisfactory (70%) and 75% of students will demonstrate mastery (grade of ≥ 80 on assignment).

d. Notes/justification: FN 263 is being increased from 2 to 4 units to provide additional time for statistics and some experimentation.

2.3.3. SLO #3 Describe the potential interactions between any and all of the following: essential nutrients, drugs, phytochemicals, and medicinal herbs.

a. Assessment tools: embedded exam questions, Drug/herbal/phytochemical, zoochemical research assignment.

b. Performance criteria for mastery: Students will utilize key drug information references such as the *Physician's Desk Reference*, *Food-Medication Interactions* and *Goodman and Gilman's The Pharmacological Basis of Therapeutics* to find key information about drugs including indications, contraindications, adverse effects, mechanism of action, and interactions.

c. Target of expected performances: 90% of students will demonstrate satisfactory (70%) and 75% of students will demonstrate mastery (grade of ≥ 80 on assignment).

d. Notes/justification: Proposed new course on Evaluating Alternative Medicine after offering an experiment course on same subject.

2.4. Results, Analysis and Recommendations for Program Objective #2 (May 2007)

Provide the measurable results (data), an analysis (interpretations) and recommendations for general curricular changes (continue data collection, change matrices, develop new course, etc.) related to each SLO for data collected during 2006-2007. (Specific changes to be recorded in Section 2.5)

2.4.1.SLO #1 Define the term phytochemical, identify the major classes of phytochemicals, and describe the key mechanisms by which phytochemicals can provide protection against chronic diseases such as heart disease and cancer (May 2007)

- a. results
- b. analysis
- c. recommendations

2.4.2. SLO #2– Describe the progression of scientific research, the hierarchy of evidence, and to utilize an evidence-based approach to evaluate the use of phytochemicals in the prevention and treatment of human disease.(May 2007)

- a. results
- b. analysis
- c. recommendations

2.4.3.SLO #3 Describe the potential interactions between any and all of the following: essential nutrients, drugs, phytochemicals, and medicinal herbs. (May 2007)

- a. results
- b. analysis
- c. recommendations

2.5. Curricular Changes for Program Objective #2 (May 2007)

Describe the curricular changes you will be making in specific courses related to each SLO:

2.5.1. SLO #1 Define the term phytochemical, identify the major classes of phytochemicals, and describe the key mechanisms by which phytochemicals can provide protection against chronic diseases such as heart disease and cancer (May 2007)

2.5.2. SLO #2– Describe the progression of scientific research, the hierarchy of evidence, and to utilize an evidence-based approach to evaluate the use of phytochemicals in the prevention and treatment of human disease. (May 2007)

2.5.3. SLO #3 Describe the potential interactions between any and all of the following: essential nutrients, drugs, phytochemicals, and medicinal herbs. (May 2007)

2.6 Other Forms of Assessment for Program Objective #2 (May 2007)

Describe any other forms of assessment that you are using to validate any of your SLOs:

2.6.1. SLO #1 to 3: Most if not all of these SLOs and more than these were assessed in different stated forms based on CADE specified skills and knowledge

statements(http://www.csupomona.edu/~hnfs/documents/CADEKnowledgeandSkillsCourse_mapping2008.pdf) in both indirect assessment via student completed surveys at graduation and direct assessment within specified courses for any one particular skill. This assessment plan (<http://www.csupomona.edu/~hnfs/documents/DepartmentofNutritionassessmentplan2008.pdf>) has been in place from 2002 to 2008.

CHAPTER 3. Program Objective #3 and Student Learning Outcomes (SLO) (May 2007)

3.3.a Program Objective #3 (2007)

Describe the role of bioactive non-nutrients in health promotion and disease prevention.

3.2.b. Student Learning Outcomes for Program Objective #3 (2007)

1. Describe, interpret and carry out basic anthropometric measurements and use these measurements to determine the nutritional status of a patient.
2. List, describe and interpret basic laboratory tests to determine such things as nutritional deficiencies/toxicities, blood lipid status, disease status, metabolic derangements and growth.
3. Describe, apply and interpret dietary intake instruments including diet histories, 24-hour diet recalls, 3-day diet diaries and food frequency questionnaires.

3.2 SLO-Curriculum Alignment Matrix for Program Objective #3 (May 2007)

I = outcome is introduced **P** = outcome is practiced **M** = Outcome is Mastered

Course (number and title)	1. Describe, interpret and carry out basic anthropometric measurements and use these measurements to determine the nutritional status of a patient.	2. List, describe and interpret basic laboratory tests to determine such things as nutritional deficiencies /toxicities, blood lipid status, disease status, metabolic derangements and growth.	3. . Describe, apply and interpret dietary intake instruments including diet histories, 24-hour diet recalls, 3-day diet diaries and food frequency questionnaires..
FN 235 Nutrition	I (Describe, interpret, carry out)	I (List, describe, interpret)	
FN 263 Introduction to Research Methods	I (intrepret)		
FN 335 Nutrition of the Life Cycle	P (Describe, interpret, carry out)	I (List, describe, interpret)	
FN 343 Nutrient-Drug Interactions			I, P (Describe)
FN 433 Advanced Nutrient Metabolism I		I, P (List, describe, interpret)	
FN 434 Advanced Nutrient	P (Describe, interpret))	P (List, describe, interpret)	

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Metabolism II			
FN 435 Advanced Nutrient Metabolism III		P (List, describe, interpret)	
FN 443/443L Medical Nutrition Therapy	M (Describe, interpret, carry out)	P, M (List, describe, interpret)	M (Describe)
FN 444/444L Medical Nutrition Therapy	M (Describe, interpret, carry out)	P, M (List, describe, interpret)	M (Describe)

3.3. Assessment Tools/ Performance Criteria/ Targets/ for Program Objective #3 (May 2007)

3.3.1. SLO #1. Describe, interpret and carry out basic anthropometric measurements and use these measurements to determine the nutritional status of a patient.

a. Assessment tools: Embedded exam questions, anthropometric assessment assignment.

b. Performance criteria for mastery: Students will carry out anthropometric assessment measurements on their classmates in MNT lab (FN 443L and 444L).

c. Target of expected performances: 90% of students will demonstrate satisfactory (70%) and 75% of students will demonstrate mastery (grade of ≥ 80 on assignment).

d. Notes/justification: no change in 2008

3.3.2. SLO #2. List, describe and interpret basic laboratory tests to determine such things as nutritional deficiencies/toxicities, blood lipid status, disease status, metabolic derangements and growth.

a. Assessment tools: Embedded exam questions, interpreting basic lab results assignment..

b. Performance criteria for mastery: Students will interpret basic laboratory test results from typical patients and determine appropriate nutrition diagnoses based on the laboratory tests.

c. Target of expected performances: 90% of students will demonstrate satisfactory (70%) and 75% of students will demonstrate mastery (grade of ≥ 80 on assignment).

d. Notes/justification: no change in 2008

3.3.3. SLO #3.. Describe, apply and interpret dietary intake instruments including diet histories, 24-hour diet recalls, 3-day diet diaries and food frequency questionnaires.

a. Assessment tools: Embedded exam questions, interpreting data, Food frequency questionnaire (FFQ) assignment

b. Performance criteria for mastery: Student will identify a disorder (osteoporosis for example), identify the nutrient deficiency associated with the disorder (calcium and vitamin D for example), develop a FFQ to determine intake of the nutrient of interest, administer the FFQ to a predefined group, analyze the results, and make recommendations.

c. Target of expected performances: 90% of students will demonstrate satisfactory (70%) and 75% of students will demonstrate mastery (grade of ≥ 80 on assignment).

d. Notes/justification: no change in 2008

3.4. Results, Analysis and Recommendations for Program Objective #3 (May 2007)

Provide the measurable results (data), an analysis (interpretations) and recommendations for general curricular changes (continue data collection, change matrices, develop new course, etc.) related to each SLO for data collected during 2006-2007. (Specific changes to be recorded in Section 2.5)

3.4.1. SLO #1 Describe, interpret and carry out basic anthropometric measurements and use these measurements to determine the nutritional status of a patient.

- a. results
- b. analysis
- c. recommendations

3.4.2. SLO #2. List, describe and interpret basic laboratory tests to determine such things as nutritional deficiencies/toxicities, blood lipid status, disease status, metabolic derangements and growth. (May 2007)

3.4.3. SLO #3. Describe, apply and interpret dietary intake instruments including diet histories, 24-hour diet recalls, 3-day diet diaries and food frequency questionnaires. (May 2007).

- a. results
- b. analysis
- c. recommendations

3.5. Curricular Changes for Program Objective #3 (May 2007)

Describe the curricular changes you will be making in specific courses related to each SLO:

3.5.1. SLO#1. Describe, interpret and carry out basic anthropometric measurements and use these measurements to determine the nutritional status of a patient. (May 2007)

3.5.2. SLO #2. List, describe and interpret basic laboratory tests to determine such things as nutritional deficiencies/toxicities, blood lipid status, disease status, metabolic derangements and growth.

3.5.3. SLO #3 Describe, apply and interpret dietary intake instruments including diet histories, 24-hour diet recalls, 3-day diet diaries and food frequency questionnaires. (May 2007)

3.6 Other Forms of Assessment for Program Objective #3 (May 2007

Describe any other forms of assessment that you are using to validate any of your SLOs:

3.6.1. SLO #1 to 3: Most if not all of these SLOs and more than these were assessed in different stated forms based on CADE specified skills and knowledge statements(http://www.csupomona.edu/~hnfs/documents/CADEKnowledgeandSkillsCourse_mapping2008.pdf) in both indirect assessment via student completed surveys at graduation and direct assessment within specified courses for any one particular skill. This assessment plan (<http://www.csupomona.edu/~hnfs/documents/DepartmentofNutritionassessmentplan2008.pdf>) has been in place from 2002 to 2008.

CHAPTER 4. Program Objective #4 and Student Learning Outcomes (SLO) (May 2007)

4.1.a Program Objective #4 (2007)

Determine nutrient needs across the lifespan under conditions of both health and disease and assess the need for nutritional supplementation.

4.1.b. Student Learning Outcomes for Program Objective #4 (2007)

1. List nutrient requirements, describe potential nutritional deficiencies and demonstrate appropriate diet adjustments for prevention of deficiencies during pregnancy and lactation
2. List nutrient requirements and describe potential nutrient deficiencies and demonstrate appropriate diet adjustments for prevention of deficiencies during childhood and adolescence.
3. List nutrient requirements and describe potential nutrient deficiencies and demonstrate appropriate diet adjustments for prevention of deficiencies during adulthood and old age.
4. Describe the nutrition-related diseases associated with the various stages of life; identify the risk factors associated with those diseases; and summarize the evidence based guidelines for the Medical Nutrition Therapies used to treat these diseases.

4.2 SLO-Curriculum Alignment Matrix for Program Objective #4 (May 2007)

I = outcome is introduced **P** = outcome is practiced **M** = Outcome is Mastered

Course (number and title)	1. <i>List</i> nutrient requirements, <i>describe</i> potential nutritional deficiencies and <i>demonstrate</i> appropriate diet adjustments for prevention of deficiencies during pregnancy and lactation	2. <i>List</i> nutrient requirements and <i>describe</i> potential nutrient deficiencies and <i>demonstrate</i> appropriate diet adjustments for prevention of deficiencies during childhood and adolescence.	3. <i>List</i> nutrient requirements and describe potential nutrient deficiencies and <i>demonstrate</i> appropriate diet adjustments for prevention of deficiencies during adulthood and old age.	4. <i>Describe</i> the nutrition-related diseases associated with the various stages of life; identify the risk factors associated with those diseases; and <i>summarize</i> the evidence based guidelines for the Medical Nutrition Therapies used to treat these diseases.
FN 235 Nutrition	I (List)	I (List, describe)	I (List, describe)	I (List, describe)
FN 263 Introduction to Research Methods				I (Summarize)
FN 328 Culture and Meal Patterns		P (List, describe)	P (List, describe)	
FN 335 Nutrition of the Life Cycle	I (Describe, demonstrate), P (list, describe, demonstrate), M demonstrate	P, M (List, describe, demonstrate)	P, M (List, describe, demonstrate)	P, M (List, describe, demonstrate)
FN 346/346L	P (demonstration)	P (demonstration)	P (demonstration)	
FN 443/443L Medical Nutrition Therapy I				P, M (List, describe, demonstrate)
FN 444/444L Medical Nutrition Therapy II				P, M (List, describe, demonstrate)

4.3. Assessment Tools/ Performance Criteria/ Targets/ for Program Objective #4 (May 2007)

1. List nutrient requirements, describe potential nutritional deficiencies and demonstrate appropriate diet adjustments for prevention of deficiencies during pregnancy and lactation.

a. Assessment Tools: Embedded exam questions, case studies

b. Performance criteria for mastery: Given a case students will be able to detect likelihood of deficiencies and then propose dietary corrections to address the deficiency in both mothers and breast fed and formula fed and weaned infants.

c. Target of expected performances: 90% of students will demonstrate satisfactory (70%) and 75% of students will demonstrate mastery (grade of ≥ 80 on assignment).

d. Notes/justification: no change in 2008

2. List nutrient requirements and describe potential nutrient deficiencies and demonstrate appropriate diet adjustments for prevention of deficiencies during childhood and adolescence.

a. Assessment Tools: Embedded exam questions, case studies

b. Performance criteria for mastery: Given a case students will be able to detect likelihood of deficiencies and then propose dietary corrections to address the deficiency in toddlers through 19 years of age.

c. Target of expected performances: 90% of students will demonstrate satisfactory (70%) and 75% of students will demonstrate mastery (grade of ≥ 80 on assignment).

d. Notes/justification: no change in 2008

3. List nutrient requirements and describe potential nutrient deficiencies and demonstrate appropriate diet adjustments for prevention of deficiencies during adulthood and old age.

a. Assessment Tools: Embedded exam questions, case studies

b. Performance criteria for mastery: Given a case students will be able to detect likelihood of deficiencies and then propose dietary corrections to address the deficiency in adults and elders.

c. Target of expected performances: 90% of students will demonstrate satisfactory (70%) and 75% of students will demonstrate mastery (grade of ≥ 80 on assignment).

d. Notes/justification: no change in 2008

4. *Describe* the nutrition-related diseases associated with the various stages of life; identify the risk factors associated with those diseases; and *summarize* the evidence based guidelines for the Medical Nutrition Therapies used to treat these diseases.

a. Assessment Tools: Embedded exam questions, case studies

b. Performance criteria for mastery: Students will demonstrate the etiology of heart disease obesity and Type 2 diabetes, cancer and osteoporosis and determine the contribution of diet to accelerating and inhibiting the development of these chronic conditions. Students will complete case studies associated with each major organ system in the body such as the cardiovascular system or gastrointestinal system. Three case

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studies will be utilized to assess student learning (hypercholesterolemia, type 2 diabetes and colon cancer).

c. Target of expected performances: 90% of students will demonstrate satisfactory (70%) and 75% of students will demonstrate mastery (grade of ≥ 80 on assignment).

d. Notes/justification: no change in 2008

.4.4. Results, Analysis and Recommendations for Program Objective # 4 (May 2007)

Provide the measurable results (data), an analysis (interpretations) and recommendations for general curricular changes (continue data collection, change matrices, develop new course, etc.) related to each SLO for data collected during 2006-2007. (Specific changes to be recorded in Section 4.5)

4.4.1.SLO #1 List nutrient requirements, describe potential nutritional deficiencies and demonstrate appropriate diet adjustments for prevention of deficiencies during pregnancy and lactation. (May 2007)

- a. results
- b. analysis
- c. recommendations

4.4.2.SLO #2 List nutrient requirements and describe potential nutrient deficiencies and demonstrate appropriate diet adjustments for prevention of deficiencies during childhood and adolescence. (May 2007).

- a. results
- b. analysis
- c. recommendations

4.4.3.SLO #3– List nutrient requirements and describe potential nutrient deficiencies and demonstrate appropriate diet adjustments for prevention of deficiencies during adulthood and old age. (May 2007).

- a. results
- b. analysis
- c. recommendations

4.4.4. SLO #4 Describe the nutrition-related diseases associated with the various stages of life; identify the risk factors associated with those diseases; and summarize the evidence based guidelines for the Medical Nutrition Therapies used to treat these diseases.(May 2007).

- a. results
- b. analysis
- c. recommendations

4.5. Curricular Changes for Program Objective #4 (May 2007)

Describe the curricular changes you will be making in specific courses related to each SLO:

4.5.1. SLO #1 List nutrient requirements, describe potential nutritional deficiencies and demonstrate appropriate diet adjustments for prevention of deficiencies during pregnancy and lactation

4.5.2. SLO #2 List nutrient requirements and describe potential nutrient deficiencies and demonstrate appropriate diet adjustments for prevention of deficiencies during childhood and adolescence.

4.5.3. SLO #3. List nutrient requirements and describe potential nutrient deficiencies and demonstrate appropriate diet adjustments for prevention of deficiencies during adulthood and old age.

4.5.4.SLO #4. Describe the nutrition-related diseases associated with the various stages of life; identify the risk factors associated with those diseases; and summarize the evidence based guidelines for the Medical Nutrition Therapies used to treat these diseases.

4.6 Other Forms of Assessment for Program Objective #4 (May 2007

Describe any other forms of assessment that you are using to validate any of your SLOs:

4.6.1. SLO #1 to 4: Most if not all of these SLOs and more than these were assessed in different stated forms based on CADE specified skills and knowledge statements(http://www.csupomona.edu/~hnfs/documents/CADEKnowledgeandSkillsCourse_mapping2008.pdf) in both indirect assessment via student completed surveys at graduation and direct assessment within specified courses for any one particular skill. This assessment plan (<http://www.csupomona.edu/~hnfs/documents/DepartmentofNutritionassessmentplan2008.pdf>) has been in place from 2002 to 2008.

CHAPTER 5. Program Objective #5 and Student Learning Outcomes (SLO) (proposed July 2008)

5.1.a Program Objective #5 (2008)

Graduates will be able to integrate knowledge of the use of nutrients at the molecular, cellular and organ level.

5.1.b. Student Learning Outcomes for Program Objective #5 (2008)

1. Describe the mechanisms by which food components are digested, absorbed, and transported.
2. Describe the mechanisms by which nutrients are stored, metabolized, and excreted..
3. Describe the mechanism by which nutrients interact with genes affecting their transcription.

5.2 Student Learning Outcome-Curriculum Alignment Matrix for Program Objective #1 (proposed July 2008)

I = outcome is introduced **P** = outcome is practiced **M** = Outcome is Mastered

Course (number and title)	SLO #1: <i>Describe</i> the mechanisms by which food components are digested, absorbed, and transported.	SLO #2: <i>Describe</i> the mechanisms by which nutrients are stored, metabolized, and excreted.	SLO #3: <i>Describe</i> the mechanism by which nutrients interact with genes affecting their transcription.
FN 235 Nutrition	I	I	I
N 263 Introduction to Research Methods			
FN 335 Nutrition of the Life Cycle	P	P	I
FN 343 Nutrient Drug Interaction		I, P	
FN 433 Adv Nutrient Metabolism I	P, M	P, M	P
FN 434 Adv. Nutrient Metabolism II			
FN 435 Adv Nutrient Metabolism III			
FN 443/443L Medical Nutrition Therapy I	M	M	
FN 444/444L Medical Nutrition Therapy II	M	M	
FN 499 Nutrigenetics			M

5.3. Assessment Tools/ Performance Criteria/ Targets/ for Program Objective #5 (proposed July 2008)

1. Describe the mechanisms by which food components are digested, absorbed, and transported.

a. Assessment Tools: Embedded exam questions

b. Performance criteria for mastery: % correct responses to organs, gut hormones, digestive enzymes, HCL, bile salts, transport mechanism (passive, active, facilitated) transporters (i.e. GLUT 5), and transport carrier molecules for selected nutrients. In MNT (FN 443/444 determined by describing abnormal functions of the above as a role in pathology.

c. Target of expected performances: 75% meet satisfactory performance (70%).

d. Notes/justification: Added July 2008, due to greater difficult of this SLO compared with previous the target is somewhat lower.

2. Describe the mechanisms by which nutrients are stored, metabolized, and excreted.

a. Assessment Tools: Embedded exam questions

b. Performance criteria for mastery: Recitation of metabolic pathways, correct identification of regulatory enzymes, regulatory molecules including appropriate vitamins and minerals, anabolic and catabolic end products of nutrients, products from nutrients and renal clearance of nutrients.

c. Target of expected performances: 75% meet satisfactory performance (70%).

d. Notes/justification: Added July 2008, due to greater difficult of this SLO compared with previous the target is somewhat lower

3. Describe the mechanism by which nutrients interact with genes affecting their transcription.

a. Assessment Tools: Embedded exam questions

b. Performance criteria for mastery: Correct identification of nutrients that control gene expression, their receptors, transcription factors, and gene products controlled by nutrients or lack of nutrients.

c. Target of expected performances: 75% meet satisfactory performance (70%).

d. Notes/justification: Added July 2008, due to greater difficult of this SLO compared with previous the target is somewhat lower

5.4. Results, Analysis and Recommendations for Program Objective #5 (proposed July 2008)

Provide the measurable results (data), an analysis (interpretations) and recommendations for general curricular changes (continue data collection, change matrices, develop new course, etc.) related to each SLO for data collected during 2006-2007. (Specific changes to be recorded in Section 5.5)

5.4.1.SLO #1 (. Describe the mechanisms by which food components are digested, absorbed, and transported. (July 2008)

- a. results
- b. analysis
- c. recommendations

5.4.2.SLO #2 Describe the mechanisms by which nutrients are stored, metabolized, and excreted. (July 2008).

- a. results
- b. analysis
- c. recommendations

5.4.3.SLO #3 Describe the mechanism by which nutrients interact with genes affecting their transcription (July 2008).

- a. results
- b. analysis
- c. recommendations

5.5. Curricular Changes for Program Objective #5 (proposed July 2008)

5.5.1. SLO #1 Describe the mechanisms by which food components are digested, absorbed, and transported. (July 2008)

5.5.2. SLO #2. Describe the mechanisms by which nutrients are stored, metabolized, and excreted. (July 2008)

5.5.3. SLO #3. Describe the mechanism by which nutrients interact with genes affecting their transcription. (July 2008)

5.6 Other Forms of Assessment for Program Objective #5 (proposed 2008)

Describe any other forms of assessment that you are using to validate any of your SLOs:

5.6.1. SLO #1 to 3: Most if not all of these SLOs and more than these were assessed in different stated forms based on CADE specified skills and knowledge

statements(http://www.csupomona.edu/~hnfs/documents/CADEKnowledgeandSkillsCourse_mapping2008.pdf) in both indirect assessment via student completed surveys at

graduation and direct assessment within specified courses for any one particular skill.

This assessment plan

(<http://www.csupomona.edu/~hnfs/documents/DepartmentofNutritionassessmentplan2008.pdf>) has been in place from 2002 to 2008.

CHAPTER 6. Program Objective #6 and Student Learning Outcomes (SLO) (proposed July 2008)

6.1.a Program Objective #6 (2008)

Graduates will be able to integrate genetic, physiologic and biochemical mechanisms by which food and nutrients promote optimal health in individual and population groups.

6.1.b. Student Learning Outcomes for Program Objective #6 (2008)

1. Define the DRIs, describe the correct application of the EAR, AI, RDA and UL for dietary assessment and guidance,
2. Define the molecular/biochemical criteria used to establish the EAR and the RDA.
3. Identify non-disease factors that significantly affect the DRIs and describe the mechanism of action.
4. Describe how single polymorphisms and in-born errors of metabolism influence dietary requirements of individuals.

6.2 SLO-Curriculum Alignment Matrix for Program Objective #6 (proposed July 2008)

I = outcome is introduced **P** = outcome is practiced **M** = Outcome is Mastered

Course (number and title)	1. <i>Define</i> the DRIs, <i>describe</i> the correct application of the EAR, AI, RDA and UL for dietary assessment and guidance	2. <i>Define</i> the molecular/biochemical criteria used to establish the EAR and the RDA.	3. <i>Identify</i> non-disease factors that significantly affect the DRIs and <i>describe</i> the mechanism of action.	4. <i>Describe</i> how single polymorphisms and in-born errors of metabolism influence dietary requirements of individuals.
FN 235 Nutrition	I (Define)	I (Define)	I (Identify)	
FN 263 Introduction to Research Methods				
FN 335 Nutrition of the Life Cycle	I (Describe),P (Define)		P (Identify)	I
FN 346/346L Community Nutrition	P (Define, Describe)			
FN 433 Advanced Nutrient Metabolism I	M (Define, Describe)	M (Define)	M (Identify, describe)	P
FN 434 Advanced Nutrient Metabolism II	M (Define, Describe)	M (Define)	M (Identify, describe)	P
FN 435 Advanced Nutrient Metabolism III	M (Define, Describe)		M (Identify, describe)	
FN 443/443L Medical Nutrition Therapy I	M (Define, Describe)			P
FN 444/444L Medical Nutrition Therapy II	M (Define, Describe)			
FN 499 Nutrigenetics				M

6.3. Assessment Tools/ Performance Criteria/ Targets/ for Program Objective #6 (proposed July 2008)

1. Define the DRIs, describe the correct application of the EAR, AI, RDA and UL for dietary assessment and guidance.

- a. **Assessment Tools:** Embedded exam questions, case studies
- b. **Performance criteria for mastery:** Compare and contrast RDA/AI, given individuals and populations student will assess for nutrient inadequacy and design diets to reverse that inadequacy.
- c. **Target of expected performances:** 75% meet satisfactory performance (70%).
- d. **Notes/justification:** added 2008

2. Define the molecular/biochemical criteria used to establish the EAR and the RDA.

- a. **Assessment Tools:** Embedded exam questions
- b. **Performance criteria for mastery:** self explanatory
- c. **Target of expected performances:** 75% meet satisfactory performance (70%).
- d. **Notes/justification:** added 2008

3. Identify non-disease factors that significantly affect the DRIs and describe the mechanism of action.

- a. **Assessment Tools:** Embedded exam questions
- b. **Performance criteria for mastery:** Case studied of individual sin different situations.
- c. **Target of expected performances:** 75% meet satisfactory performance (70%).
- d. **Notes/justification:** added 2008

4. Describe how single polymorphisms and in-born errors of metabolism influence dietary requirements of individuals

- a. **Assessment Tools:** Embedded exam questions, case studies
- b. **Performance criteria for mastery:** students provided with actual cases which they must then rationalize their appropriate nutrition response for each case.
- c. **Target of expected performances:** 75% meet satisfactory performance (70%).
- d. **Notes/justification:** added 2008

.6.4. Results, Analysis and Recommendations for Program Objective #6 (proposed July 2008)

Provide the measurable results (data), an analysis (interpretations) and recommendations for general curricular changes (continue data collection, change matrices, develop new course, etc.) related to each SLO for data collected during 2006-2007. (Specific changes to be recorded in Section 6.5)

6.4.1.SLO #1 Define the DRIs, describe the correct application of the EAR, AI, RDA and UL for dietary assessment and guidance. (July 2008)

- a. results
- b. analysis
- c. recommendations

6.4.2.SLO #2 Define the molecular/biochemical criteria used to establish the EAR and the RDA. (July 2008).

- a. results
- b. analysis
- c. recommendations

6.4.3.SLO #3– Identify non-disease factors that significantly affect the DRIs and describe the mechanism of action. (July 2008).

- a. results
- b. analysis
- c. recommendations

6.4.4. SLO #4. 4. Describe how single polymorphisms and in-born errors of metabolism influence dietary requirements of individuals (July 2008).

- a. results
- b. analysis
- c. recommendations

6.5. Curricular Changes for Program Objective #6 (proposed July 2008)

Describe the curricular changes you will be making in specific courses related to each SLO:

6.5.1. SLO #1 Define the DRIs, describe the correct application of the EAR, AI, RDA and UL for dietary assessment and guidance.

6.5.2. SLO #2. Define the molecular/biochemical criteria used to establish the EAR and the RDA.

6.5.3. SLO #3. Identify non-disease factors that significantly affect the DRIs and describe the mechanism of action.

6.5.4.SLO #4. Describe how single polymorphisms and in-born errors of metabolism influence dietary requirements of individuals

6.6 Other Forms of Assessment for Program Objective #6 (proposed July 2008)

Describe any other forms of assessment that you are using to validate any of your SLOs:

6.6.1. SLO #1 to 4: Most if not all of these SLOs and more than these were assessed in different stated forms based on CADE specified skills and knowledge statements (http://www.csupomona.edu/~hnfs/documents/CADEKnowledgeandSkillsCourse_mapping2008.pdf) in both indirect assessment via student completed surveys at graduation and direct assessment within specified courses for any one particular skill.

This assessment plan

(<http://www.csupomona.edu/~hnfs/documents/DepartmentofNutritionassessmentplan2008.pdf>) has been in place from 2002 to 2008.

**CHAPTER 7. Program Objective #7 and
Student Learning Outcomes (SLO) (proposed July 2008)
(NOTE: The development of the Objective #7 is in response to
assessment of CADE skills and knowledge from 2002-2008)**

7.1.a Program Objective #7 (2008)

Students will understand and demonstrate the scientific method and the application of research methodologies and statistics to develop evidence based guidelines (See SLO #4 of Program Objective 4 Chapter 4).

7.1.b. Student Learning Outcomes for Program Objective #7 (2008)

1. Construct a testable hypothesis and apply appropriate methodology or experimental design to further advance the nutrition field.
2. Perform an ANOVA, linear regression analysis; and calculate odds and relative risk ratios, prevalence and incidence to interpret nutrition and disease data.
3. Identify interpret key findings and discoveries from data that are organized in figures and tables from the scientific literature.

7.2 SLO-Curriculum Alignment Matrix for Program Objective #7 (proposed: July 2008)

I = outcome is introduced **P** = outcome is practiced **M** = Outcome is Mastered

Course (number and title)	1. Construct a testable hypothesis and apply appropriate methodology or experimental design to further advance the nutrition field.	2. Define and perform an ANOVA, linear regression analysis; and calculate odds and relative risk ratios, and prevalence and describe their use.	3. Identify and interpret key findings and discoveries from data that are organized in figures and tables from the scientific literature.
STAT 120 Statistics		I (Define and Perform)	
FN 235 Nutrition		I (Define)	
FN 263 Introduction to Research Methods	I (Apply), I, P (Construct),	P, M (Define, perform, calculate)	I (Identify, interpret)
FST 321/321L Experimental Food Science	P (Construct and apply)	P (Define and Perform)	P (Identify, interpret)
FN 335 Nutrition of the Life Cycle			P (Identify, interpret)
FN 343 Nutrient Drug Interaction	P (Apply, construct)	P (Define, perform, calculate)	P (Identify, interpret)
FN 346/346L Community Nutrition			P (Identify, interpret)
FN 433 Advanced Nutrient Metabolism I	P (construct)		M (Identify, interpret)
FN 434 Advanced Nutrient Metabolism II	P (construct)		M (Identify, interpret)
FN 435 Advanced Nutrient Metabolism III			M (Identify, interpret)
FN 443/443L Medical Nutrition Therapy I			M (Identify, interpret)
FN 444/444L Medical Nutrition Therapy II			M (Identify, interpret)
4XX Evaluation of Alternative Medicine (new course)	M	M	M
AG481/482 Project Design	M	P	M (Identify, interpret)

7.3. Assessment Tools/ Performance Criteria/ Targets/ for Program Objective #7 (proposed July 2008)

1. Construct a testable hypothesis and apply appropriate methodology or experimental design to further advance the nutrition field.

a. Assessment Tools: take home and exam exercises, projects, laboratory exercises.

b. Performance criteria for mastery: Writing an appropriate hypothesis when provided a specific background or theory base. When students are given a specified background and objective they correctly design a randomized phase I, II, III or IV clinical trial, case-control prospective or retrospective study

c. Target of expected performances: 75% meet satisfactory performance (70%).

d. Notes/justification: added 2008

2. Define and perform an ANOVA, linear regression analysis; and calculate odds and relative risk ratios, and prevalence and describe their use.

a. Assessment Tools: Problem sets, laboratory exercises, embedded exam questions.

b. Performance criteria for mastery: Completion of assignment without error.

c. Target of expected performances:: 75% meet satisfactory performance (70%).

d. Notes/justification: no change in 2008

3. Identify and interpret key findings and discoveries from data that are organized in figures and tables from the scientific literature.

a. Assessment Tools: Embedded exam questions, home work assignments

b. Performance criteria for mastery: Students recognition of research data matched to nutrition facts they learned. Students correctly reproduce a facsimile of data to demonstrate a nutrition concept.

c. Target of expected performances:: 75% meet satisfactory performance (70%).

d. Notes/justification: no change in 2008

7.4. Results, Analysis and Recommendations for Program Objective #7 (proposed July 2009)

Provide the measurable results (data), an analysis (interpretations) and recommendations for general curricular changes (continue data collection, change matrices, develop new course, etc.) related to each SLO for data collected during 2006-2007. (Specific changes to be recorded in Section 7.5)

7.4.1.SLO #1 Construct a testable hypothesis and apply appropriate methodology or experimental design to further advance the nutrition field. (July 2008)

- a. results
- b. analysis
- c. recommendations

7.4.2.SLO #2 Define and perform an ANOVA, linear regression analysis; and calculate odds and relative risk ratios, and prevalence and describe their use. (July 2008).

- a. results
- b. analysis
- c. recommendations

7.4.3.SLO #3 Identify and interpret key findings and discoveries from data that are organized in figures and tables from the scientific literature. (July 2008).

- a. results
- b. analysis
- c. recommendations

7.5. Curricular Changes for Program Objective #7 (proposed July 2008)

Describe the curricular changes you will be making in specific courses related to each SLO:

7.5.1. SLO #1 Construct a testable hypothesis and apply appropriate methodology or experimental design to further advance the nutrition field.

7.5.2. SLO #2. Define and perform an ANOVA, linear regression analysis; and calculate odds and relative risk ratios, and prevalence and describe their use. (July 2008)

7.5.3. SLO #3. Identify and interpret key findings and discoveries from data that are organized in figures and tables from the scientific literature.

7.6 Other Forms of Assessment for Program Objective #7 July 2008)

Describe any other forms of assessment that you are using to validate any of your SLOs:

7.6.1. SLO #1 to 3: Most if not all of these SLOs and more than these were assessed in different stated forms based on CADE specified skills and knowledge statements(http://www.csupomona.edu/~hnfs/documents/CADEKnowledgeandSkillsCourse_mapping2008.pdf) in both indirect assessment via student completed surveys at graduation and direct assessment within specified courses for any one particular skill.

This assessment plan

(<http://www.csupomona.edu/~hnfs/documents/DepartmentofNutritionassessmentplan2008.pdf>) has been in place from 2002 to 2008.

**CHAPTER 8. Program Objective #8 and
Student Learning Outcomes (SLO) (proposed July 2008)
(NOTE: The development of Objective 8 is in response to
assessment of CADE skills and knowledge from 2002-2008)**

8.1.a Program Objective #8(2008)

Students will be able to interpret basic statistics used in nutrition and medical research. (Related to Program Objective #7 Chapter 7)

8.1.b. Student Learning Outcomes for Program Objective #8 (2008)

1. Calculate statistical power, sample size and level of statistical significance.
2. Demonstrate the appropriate use of standard deviation and standard error of the mean.
3. Describe the difference between cause and effect and associations and correlations from regression analysis.
4. Define secondary and tertiary gene by nutrient, gender by nutrient, nutrient by nutrient interactions

8.2 SLO-Curriculum Alignment Matrix for Program Objective #8 (proposed: July 2008)

I = outcome is introduced P = outcome is practiced M = Outcome is Mastered

Course (number and title)	1. Construct a testable hypothesis and apply appropriate methodology or experimental design to further advance the nutrition field.	2. Define and perform an ANOVA, linear regression analysis; and calculate odds and relative risk ratios, and prevalence and describe their use.	3. Identify and interpret key findings and discoveries from data that are organized in figures and tables from the scientific literature.
STAT 120 Statistics		I (Define and Perform)	
FN 235 Nutrition		I (Define)	
FN 263 Introduction to Research Methods	I (Apply), I, P (Construct),	P, M (Define, perform, calculate)	I (Identify, interpret)
FN 335 Nutrition of the Life Cycle			P (Identify, interpret)
FN 343 Nutrient Drug Interaction	P (Apply, construct)	P (Define, perform, calculate)	P (Identify, interpret)
FN 346/346L Community Nutrition			P (Identify, interpret)
FN 433 Advanced Nutrient Metabolism I	P (construct)		M (Identify, interpret)
FN 434 Advanced Nutrient Metabolism II	P (construct)		M (Identify, interpret)
FN 435 Advanced Nutrient Metabolism III			M (Identify, interpret)
FN 443/443L Medical Nutrition Therapy I			M (Identify, interpret)
FN 444/444L Medical Nutrition Therapy II			M (Identify, interpret)
4XX Evaluation of Alternative Medicine (new course)	M	M	M
AG481/482 Project Design	M	P	M (Identify, interpret)

8.3. Assessment Tools/ Performance Criteria/ Targets/ for Program Objective #8 (proposed July 2008)

1. Construct a testable hypothesis and apply appropriate methodology or experimental design to further advance the nutrition field.

- a. Assessment Tools:** take home and exam exercises, projects, and laboratory exercises.
- b. Performance criteria for mastery:** Writing an appropriate hypothesis when provided a specific background or theory base.
- c. Target of expected performances:** 75% meet satisfactory performance (70%).
- d. Notes/justification:** added 2008

2. Define and perform an ANOVA, linear regression analysis; and calculate odds and relative risk ratios, and prevalence and describe their use.

- a. Assessment Tools:** Problem sets, laboratory exercises, embedded exam questions.
- b. Performance criteria for mastery:** Completion of assignment without error.
- c. Target of expected performances::** 75% meet satisfactory performance (70%).
- d. Notes/justification:** no change in 2008

3. Identify and interpret key findings and discoveries from data that are organized in figures and tables from the scientific literature.

- a. Assessment Tools:** Embedded exam questions, home work assignments
- b. Performance criteria for mastery:** Students recognition of research data matched to nutrition facts they learned. Students correctly reproduce a facsimile of data to demonstrate a nutrition concept.
- c. Target of expected performances::** 75% meet satisfactory performance (70%).
- d. Notes/justification:** no change in 2008

8.4. Results, Analysis and Recommendations for Program Objective #8 (proposed July 2009)

Provide the measurable results (data), an analysis (interpretations) and recommendations for general curricular changes (continue data collection, change matrices, develop new course, etc.) related to each SLO for data collected during 2006-2007. (Specific changes to be recorded in Section 8.5)

8.4.1.SLO #1 Construct a testable hypothesis and apply appropriate methodology or experimental design to further advance the nutrition field. (July 2008)

- a. results
- b. analysis
- c. recommendations

8.4.2.SLO #2 Define and perform an ANOVA, linear regression analysis; and calculate odds and relative risk ratios, and prevalence and describe their use. (July 2008).

- a. results
- b. analysis
- c. recommendations

8.4.3.SLO #3 Identify and interpret key findings and discoveries from data that are organized in figures and tables from the scientific literature. (July 2008).

- a. results
- b. analysis
- c. recommendations

8.5. Curricular Changes for Program Objective #8 (proposed July 2008)

Describe the curricular changes you will be making in specific courses related to each SLO:

8.5.1. SLO #1 to 3: 1.6.1. SLO #1-# 5: Most if not all of these SLOs and more than these were assessed in different stated forms based on CADE specified skills and knowledge

statements(http://www.csupomona.edu/~hnfs/documents/CADEKnowledgeandSkillsCourse_mapping2008.pdf) in both indirect assessment via student completed surveys at graduation and direct assessment within specified courses for any one particular skill.

This assessment plan

(<http://www.csupomona.edu/~hnfs/documents/DepartmentofNutritionassessmentplan2008.pdf>) has been in place from 2002 to 2008.

8.6 Other Forms of Assessment for Program Objective #8 July 2008)

Describe any other forms of assessment that you are using to validate any of your SLOs:

8.6.1. SLO #1 Construct a testable hypothesis and apply appropriate methodology or experimental design to further advance the nutrition field. (July 2008).

8.6.2.SLO #2 Define and perform an ANOVA, linear regression analysis; and calculate odds and relative risk ratios, and prevalence and describe their use. (July 2008)

8.6.3. SLO #3 Identify and interpret key findings and discoveries from data that are organized in figures and tables from the scientific literature. (July 2008)