

Department: Human Nutrition and Food Science
Program: Food Science and Technology
Date: May 2007
Updated: _____

Check List:

Introduction Completed _____ Page _____

Chapter 1

1.1.a. Developed Program Objective #1 Completed _____, Chapter _____, Page _____

1.1.b Student Learning Outcomes For Program Objective #1

- Developed three to five “measurable” student learning outcomes (SLO).
 - For May 2007 Date Completed _____: Chapter _____, Page; _____
 - For May 2008 Date Completed _____ Chapter _____, Page; _____
 - For May 2009 Date Completed _____ Chapter _____, Page; _____

1.2 Student Learning Outcome –Curriculum Alignment Matrix For Program Objective #1

- For May 2007 Developed a course alignment matrix for each SLO.
Completed _____ Chapter _____, Page; _____

1.3 Assessment Tools/Performance Criteria/ Targets for Program Objective #1

- For May 2007 Developed an assessment plan for each SLO
Completed _____ Chapter _____, Page; _____

1.4 Results/Analysis/ Recommendations for Program Objective #1

- For May 2007 Developed results, analysis and recommendations for each SLO
Completed _____ Chapter _____, Page; _____

1.5 Curricular Improvements for Program Objective #1

- For May 2007 Circular process initiated---measure, evaluate, improve, measure
Completed _____ Chapter _____, Page; _____

1.6 Other Forms of Assessment for Program Objective #1

- For May 2007 Developed an assessment plan using other criteria of student performance
Completed _____ Chapter _____, Page; _____

Chapter 2

2.1.a Developed Program Objective #2 Completed _____, Chapter ____,
Page _____

2.1.b Student Learning Outcomes For Program Objective #2

- Developed three to five “measurable” student learning outcomes (SLO).
 - For May 2007 Date Completed _____: Chapter _____, Page; _____
 - For May 2008 Date Completed _____ Chapter _____, Page; _____
 - For May 2009 Date Completed _____ Chapter _____, Page; _____

2.2 Student Learning Outcome –Curriculum Alignment Matrix for Program Objective #2

- For May 2007 Developed a course alignment matrix for each SLO.
Completed _____ Chapter _____, Page; _____

2.3 Assessment Tools/Performance Criteria/ Targets for Program Objective #2

- For May 2007 Developed an assessment plan for each SLO
Completed _____ Chapter _____, Page; _____

2.4 Results/Analysis/ Recommendations for Program Objective #2

- For May 2007 Developed results, analysis and recommendations for each SLO
Completed _____ Chapter _____, Page; _____

2.5. Curricular Improvements for Program Objective #2

- For May 2007 Circular process initiated---measure, evaluate, improve, measure
Completed _____ Chapter _____, Page; _____

2.6 Other Forms of Assessment for Program Objective #2

- For May 2007 Developed an assessment plan using other criteria of student
performance
Completed _____ Chapter _____, Page; _____

Reminder:

Progress report deadlines – March 15

April 15

Final plan due – May 15

Key Definitions and Purpose of this Document.

The CSU system is requiring development of Student Learning Outcome (SLO) Assessment as part of the larger picture of 5-Year Program Review. SLO Assessment is to be conducted every year as part of the yearly curricular process of:

Fall, Winter and Spring quarters	gather data for assessment measures, analyze data, determine recommendations for curricular changes
Following Fall quarter	review Expanded Course Outlines to determine where needed curricular changes should be incorporated, develop new curriculum package of curricular changes
Winter quarter	submit curriculum package of changes to College, receive College approval, send approved curriculum package through University cycle

Traditionally Program Assessment has been the equivalent of 5-Year Program Review based on:

A. Broad Program Goals: Comprehensive and inclusive statements about what the program will do, not what the graduates will achieve. They are not measurable.

B. Outcome Measures: Outcome measures are aligned with a Program Goal and are measurable. These measures are data showing graduation rates or completion rates, achievement of students after graduation, etc.

This Document represents the current view of Student Learning Outcome Assessment as part of 5-Year Program Review which focuses on what students learn, the measurement of that learning and the development of a plan to improve the methods (curriculum) and level of student learning.

C. Program Student Objective or Goal: Similar to program goal but focused on what graduates have achieved from their progress through a curriculum of study.

D. Student Learning Outcomes: These are aligned under the Program objective and are measurable. These are measurements of performance of skills, demonstration of knowledge linked to the Program Objective.

The following template you will complete is not a one-time report.

Introduction to the Program and Assessment Plan

In this section it is important to give an overview description of your academic program so the reader can understand what your program is all about. Keep in mind you will be updating each section every year and will add the information as is outlined below. (The items in parentheses below are examples of how the document will be added to each year but will not be completed by May 2007.)

A. Program Mission/Vision as applicable

The Food Science and Technology (FST) Bachelor of Science curriculum at Cal Poly Pomona is an interdisciplinary program that draws faculty and courses from Human Nutrition and Food Science, Animal Science, Horticulture, Food Marketing and Agribusiness, Biology, Chemistry, and Industrial and Manufacturing Engineering. Students have the option of choosing science and technology, business, Culinology[®], or pre-professional tracks (for students interested in pre-vet, pre-pharmacy, pre-med or pre-dental academics) while moving through a curriculum designed to meet the Institute of Food Technologists (IFT) undergraduate standards and guidelines.

B. Describe briefly the curriculum and instructional methods your program uses to accomplish your program objectives (i.e. Internships; capstone courses, course sequences, research projects, independent study, service learning etc).

a. as of May 2007 – The program has a required internship (FST441), capstone courses including Principles of HACCP (Hazard Analysis Critical Control Points) FST 423, and Food Product Development (FST421/L), course sequences such as Unit Operations I and II (FST417/L and FST427/L), and Food Chemistry I and II (FST420/L and FST426/L). Research projects, independent study and service learning are optional.

C. Describe briefly the status of your current updates as a result of your previous assessment cycle

Assessment has started at the course level.

Program Objectives and Student Learning Outcomes (SLO)

Identify 2 program objectives that should probably be unique to your subject matter/discipline – 1 for Chapter 1 and 1 for Chapter 2. For the Program Objective below, identify 3-5 Student Learning Outcomes for each of the next 3 years. For subsequent years some of the same SLOs from May 2007 may be measured again in 2008 and 2009 or they may be measured every other year or every third year – each program will have to determine what is appropriate for their program and customize this listing for their program.

Program Objective 1. To integrate knowledge of Food Chemistry and Analysis as of May 2007

Student Learning Outcome 1.1: To describe the chemistry underlying the properties and reactions of various food components.

Student Learning Outcome 1.2: To describe the major chemical reactions that limit shelf life of foods.

Student Learning Outcome 1.3: To describe the principles behind analytical techniques associated with food.

Program Objective 2. To demonstrate knowledge in Food Processing and Engineering as of May 2007

Student Learning Outcome 2.1: To describe the principles which make a food product safe for consumption.

Student Learning Outcome 2.2: To identify the basic principles and practices of cleaning and sanitation in food processing operations.

Student Learning Outcome 2.3: To describe the source and variability of raw food material and their impact on food processing operations.

Program Objective 3. To demonstrate knowledge in Food Safety and Microbiology as of May 2007

Student Learning Outcome 3.1: To identify the conditions, including sanitation practices, under which the important pathogens and spoilage microorganisms are commonly inactivated, killed or made harmless in foods.

Student Learning Outcome 3.2: To identify the conditions under which the important pathogens are commonly inactivated, killed or made harmless in foods.

Student Learning Outcome 3.3: To describe the important pathogens and spoilage microorganisms in foods and the conditions under which they will grow.

Program Objective 4. To demonstrate knowledge in Applied Food Science as of May 2007

Student Learning Outcome 4.1: To apply and incorporate the principles of food science in practical, real world situations and problems.

Student Learning Outcome 4.2: To apply the principles of food science to control and assure the quality of food products.

Student Learning Outcome 4.3: To use computers to solve food science problems.

1.2 Student Learning Outcome-Curriculum Alignment Matrix for Program Objectives – as of May 2007

I=Introduced; P=Practiced; M=Mastered

Program Objective 1: To integrate knowledge of Food Chemistry and Analysis

Student Learning Outcome	AG 100	AG 401	MIC 320/L	FST 125	FST 232/L	FST 319/A	FST 322	FST 325	FST 332/L	FST 417/L	FST 418/L	FST 420/L	FST 421/L	FST 422/L	FST 423/A	FST 426/L	FST 427/L	FST 441/442	FST 464
1.1 To describe the chemistry underlying the properties and reactions of various food components				I								I, P	P	P		M			
1.2 To describe the major chemical reactions that limit shelf life of foods.				I		I, P						I, P	P			M			
1.3 To describe the principles behind analytical techniques associated with food.												I		M		P			

Program Objective 2: To demonstrate knowledge in Food Processing and Engineering

Student Learning Outcome	AG 100	AG 401	MIC 320/L	FST 125	FST 232/L	FST 319/A	FST 322	FST 325	FST 332/L	FST 417/L	FST 418/L	FST 420/L	FST 421/L	FST 422/L	FST 423/A	FST 426/L	FST 427/L	FST 441/442	FST 464
2.1 To describe the principles that make a food product safe for consumption.				I		P		P		M			P				M		
2.2 To identify the basic principles and practices of cleaning and sanitation in food processing operations.				I				P					P		M				
2.3 To describe the source and variability of raw food material and their impact on food processing operations.				I		P				M							M		

Program Objective 3: To demonstrate knowledge in Food Safety and Microbiology

Student Learning Outcome	AG 100	AG 401	MC 320/L	FST 125	FST 232/L	FST 319/A	FST 322	FST 325	FST 332/L	FST 417/L	FST 418/L	FST 420/L	FST 421/L	FST 422/L	FST 423/A	FST 426/L	FST 427/L	FST 441/442	FST 464
3.1 To identify the conditions, including sanitation practices, under which the important pathogens and spoilage microorganisms are commonly inactivated, killed or made harmless in foods.			M	I		P		P		P				M		M			
3.2 To identify the conditions under which the important pathogens are commonly inactivated, killed or made harmless in foods.			M	I		P		P		M			M		M		M		
3.3 To describe the important pathogens and spoilage microorganisms in foods and the conditions under which they will grow.			M	I		P		P					M		M				

Program Objective 4: To demonstrate knowledge in Applied Food Science

Student Learning Outcome	AG 100	AG 401	MIC 320/L	FST 125	FST 232/L	FST 319/A	FST 322	FST 325	FST 332/L	FST 417/L	FST 418/L	FST 420/L	FST 421/L	FST 422/L	FST 423/A	FST 426/L	FST 427/L	FST 441/442	FST 464
4.1 To apply and incorporate the principles of food science in practical, real-world situations and problems.				I		P	P						M		M				
4.2 To apply the principles of food science to control and assure the quality of food products.			P	I			P						M	M					
4.3 To use computers to solve food science problems.				I	P	P	P	P	M	M	M	M	M	M	M	M	M		

Program Objective 1. To integrate knowledge of Food Chemistry and Analysis (May 2007)

Student Learning Outcome 1.1: To describe the chemistry underlying the properties and reactions of various food components.

Performance Criteria (I=FST125, FST420/L; P=FST420/L, FST421/L, FST422/L; M=FST426/L)

- a. Assessment: Embedded exam questions, lab experiments and lab reports.
- b. Demonstrated mastery (grade \geq 80%). Acceptable=70%.

Student Learning Outcome 1.2: To describe the major chemical reactions that limit shelf life of foods.

Performance Criteria (I=FST125, FST319/A; P=FST319/A, FST420/L, FST421/L; M=FST426/L)

- a. Assessment: Embedded exam questions, class activities, lab experiments and lab reports.
- b. Demonstrated mastery (grade \geq 80%). Acceptable=70%.

Student Learning Outcome 1.3: To describe the principles behind analytical techniques associated with food.

Performance Criteria (I=FST420/L; P= FST426/L; M=FST422/L)

- a. Assessment: Embedded exam questions, lab experiments and lab reports.
- b. Demonstrated mastery (grade \geq 80%). Acceptable=70%.

Program Objective 2. To demonstrate knowledge in Food Processing and Engineering (May 2007)

Student Learning Outcome 2.1: To describe the principles which make a food product safe for consumption.

Performance Criteria (I=FST125; P=FST319/A, FST325, FST421/L; M=FST417/L, FST427/L)

- a. Assessment: Embedded exam questions, class activities, lab experiments and lab reports.
- b. Target of expected performance: demonstrated mastery (grade \geq 80%). Acceptable=70%.

Student Learning Outcome 2.2: To identify the basic principles and practices of cleaning and sanitation in food processing operations.

Performance Criteria (I=FST125; P=FST325, FST421/L; M=FST423/A)

a. Assessment: Embedded exam questions, class activities, lab experiments and lab reports.

b. Target of expected performance: demonstrated mastery (grade $\geq 80\%$).
Acceptable=70%.

Student Learning Outcome 2.3: To describe the source and variability of raw food material and their impact on food processing operations.

Performance Criteria (I=FST125; P=FST319/A; M= FST417/L, FST427L)

a. Assessment: Embedded exam questions, class activities, lab experiments and lab reports.

b. Target of expected performance: demonstrated mastery (grade $\geq 80\%$).
Acceptable=70%.

Program Objective 3. To demonstrate knowledge in Food Safety and Microbiology (May 2007)

Student Learning Outcome 3.1: To identify the conditions, including sanitation practices, under which the important pathogens and spoilage microorganisms are commonly inactivated, killed or made harmless in foods.

Performance Criteria (I=FST125; P=FST319/A, FST325, FST417/L; M= MIC320/L, FST421/L, FST423/A)

a. Assessment: Embedded exam questions, class activities, lab experiments and lab reports.

b. Target of expected performance: demonstrated mastery (grade $\geq 80\%$).
Acceptable=70%.

Student Learning Outcome 3.2: To identify the conditions under which the important pathogens are commonly inactivated, killed or made harmless in foods.

Performance Criteria (I=FST125; P=FST319/A, FST325; M= MIC320/L, FST417/L, FST421/L, FST423/A, FST427/L)

a. Assessment: Embedded exam questions, class activities, lab experiments and lab reports.

b. Target of expected performance: demonstrated mastery (grade $\geq 80\%$).
Acceptable=70%.

Student Learning Outcome 3.3: To describe the important pathogens and spoilage microorganisms in foods and the conditions under which they will grow.

Performance Criteria (I=FST125; P= FST325, FST319/A; M= MIC320/L, FST421/L, FST423/A)

a. Assessment: Embedded exam questions, class activities, lab experiments and lab reports.

- b. Target of expected performance: demonstrated mastery (grade \geq 80%).
Acceptable=70%.

Program Objective 4. To demonstrate knowledge in Applied Food Science (May 2007)

Student Learning Outcome 4.1: To apply and incorporate the principles of food science in practical, real world situations and problems.

Performance Criteria (I=FST125; P=FST319/A, FST322, FST325; M=FST421/L, FST423/A)

- a. Assessment: Embedded exam questions, class activities, lab experiments and lab reports.
- b. Target of expected performance: demonstrated mastery (grade \geq 80%).
Acceptable=70%.

Student Learning Outcome 4.2: To apply the principles of food science to control and assure the quality of food products.

Performance Criteria (I=FST125; P=MIC320/L, FST322, FST325; M=FST421/L, FST422/L)

- a. Assessment: Embedded exam questions, lab experiments and lab reports.
- b. Target of expected performance: demonstrated mastery (grade \geq 80%).
Acceptable=70%.

Student Learning Outcome 4.3: To use computers to solve food science problems.

Performance Criteria (I=FST125; P=FST232/L, FST319/A, FST322, FST325; M=FST332/L, FST417/L, FST418/L, FST420/L, FST421/L, FST422/L, FST423/A, FST426/L, FST427/L)

- a. Assessment: Embedded exam questions, class activities, lab experiments and lab reports.
- b. Target of expected performance: demonstrated mastery (grade \geq 80%).
Acceptable=70%.