

PROGRAM REVIEW CERTIFICATION

Institution: University of Maryland Eastern Shore

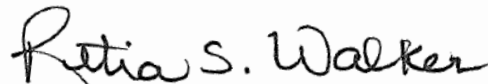
Academic Unit: School of Agricultural and Natural Sciences
Department of Agriculture, Food and Resource
Sciences

Program Reviewed: Food Science and Technology Ph.D. Program

**Year in which the review
process was completed** June 2, 2012

Program Reviewer(s): Chong M. Lee, Ph.D.
Professor Emeritus of Food Science
Dept. of Nutrition and Food Sciences
University of Rhode Island

Submitted by:



Retia Walker, Ph.D.
Interim Provost and Vice President
Division of Academic Affairs

Submission Date: October 19, 2012

**UNIVERSITY OF MARYLAND EASTERN SHORE
SCHOOL OF AGRICULTURAL AND NATURAL SCIENCES
FOOD SCIENCE AND TECHNOLOGY Ph.D. PROGRAM**

**PROGRAM REVIEW - 2012
EXTERNAL REVIEWER SUMMARY**

Overview

The centerpiece of UMES' mission is "Providing high quality education to persons who demonstrate the potential to become successful students, particularly from among minority communities, while fostering multi-cultural diversity." Missions and goals of all programs are aligned with the institution's missions and goals while maintaining a focus on students' professional and personal developmental needs in their respective disciplines.

Mission

The Food Science and Technology (FDST) Ph.D. Program at the University of Maryland Eastern Shore is being administered through the Department of Agriculture, Food and Resource Sciences (DAFRS) in the School of Agricultural and Natural Sciences since Fall 2002. The program is headed by a director and has two additional faculty and two staff positions. All faculty positions are supported with the federally funded Title II program. Further support is generated through projects based on formula funds as well as competitive grant proposals. The program's mission is to prepare students for successful careers in the food industry, academia and government with teaching, research and outreach/service programs directed to enhance the safety and availability of wholesome foods and promote the utilization of regional agricultural raw materials.

Goals

The FDST Ph.D. program is designed to equip students with sound understanding of the underlying principles of food composition, food processing, food microbiology, food safety and food quality. The focus of the FDST program is on the safety and quality of foods.

The Ph.D. requires a minimum of 36 credits beyond the M.S. level, with at least 24 credits of course work and 12 credits of dissertation research. Formal application for advancement to candidacy in the doctoral program requires successful completion of both the comprehensive examination and an oral defense of the dissertation proposal.

Collaboration exists with faculty in the Human Ecology Department, which offers a program in Nutrition and in Dietetics. At the master's level, the Food and Agricultural Sciences (FASC) program is an interdepartmental program and offers a concentration in Food and Nutrition. Collaboration with other faculty in the department as well as other departments on campus, other universities and agencies is important to create enough of a critical mass to support this Ph.D. program.

Objectives

1. To provide the Eastern Shore, the State of Maryland, and the nation with individuals holding the Ph.D. degree in Food Science and Technology who have the knowledge and competencies to fill critical employment needs in scientific and technological areas in this discipline;
2. To provide in the Land Grant tradition a regional, national and international Center of Excellence in Food Science and Technology that will be used for teaching, research and outreach to include the education and training of personnel who are or will be involved in the food related sectors of agriculture; and
3. To create new opportunities and training for UMES students to develop their skills and competencies in problem solving, critical and analytical thinking, and communications, with an emphasis on the safety and quality of foods.

Five-Year Enrollment and Degree Data

Name of Major	2007	2008	2009	2010	2011	Totals
Food Science and Technology	14	15	12	12	14	67
Graduates	1	2	1	4	1	9

Summary of Internal and External Reviews

Program Strengths

The identified program strengths are as follows:

1. The focus area of the program is in food safety and quality which has drawn national attention due to a rising public concern for food safety and quality. Consumers expect high quality and safe food supply, and in response the food industry is making all-out efforts to ensure the safety of the food supply. Likewise, it is the current priority area in the USDA and FDA research funding.
2. Creating a critical mass through collaboration. The third is maximum, yet effective output from limited faculty available. Finally, the infrastructure of research facilities is in commendable shape.

Program Weaknesses

1. Lack of alignment with regional food industry
2. Lack of pilot plant for food processing lab
3. Lack of lab components in the program curriculum

Specific Observations and Recommendations from the External Review:

1. Long term plan for IFT accreditation with additional faculty members and expanded curriculum

2. Food processing class must have a lab component.
3. Food chemistry class can utilize a demonstration lab (e.g. various food or ingredient samples to show physicochemical changes, functional performance of starch and gums, sweetness of various sweeteners or can be better served with a lab component).
4. A new course that deals with 'physical principles of food processing' in place of 'food engineering'. This can be included in the expanded food processing course.
5. Continue effort to upgrade research facilities.
6. Develop various technical workshops relating to food safety and quality as part of extension activity.
7. Be active in professional organizations such as local and national IFT and food safety consortium.
8. Searching literature via 'e-journal' instead of hard copy journals.

Program's Response/Plan for Addressing Recommendations:

Response to Recommendation #1

IFT has accreditation for undergraduate programs only, not graduate programs. However, the program director will work with the chair, faculty and administration to expand the curriculum into the undergraduate population by suggesting to develop a Food Science/Food Safety area of concentration within the General Agriculture major. Additional faculty members would allow this to be implemented.

Response to Recommendation #1, 2 and 3

This ties into the weakness mentioned that we do not have a pilot plant for food processing to develop a laboratory class. The instructor tries to overcome this deficiency by showing videos from various food processing operations and will plan field trips to plants located in our area that process food.

Response to Recommendation #3

Demonstrations of physical changes using gums are already incorporated into the Food Chemistry lecture. Expanding this to include sweetness of various sweeteners is a good idea and will be incorporated.

Response to Recommendation #4

Elements of physical principals of food processing is already incorporated in food processing. Expanding this is certainly desirable but does not fit into the existing 3 credit hour course.

Response to Recommendation #5

While maintenance of equipment, replacement of old and broken equipment as well as purchase and installation of new equipment is a challenge, we have been able to that successfully throughout the existence of this program. Some funding for equipment is available

through our Title III activity, other funds are obtained through competitive grant proposals and some maintenance is being paid by departmental funds (DAFRS). We will continue to use these resources and look other opportunities to upgrade facilities as well as share equipment with other researchers on campus as appropriate.

Response to Recommendation #6

Although we have an Extension Specialist housed in our building there is no reporting requirement to the FDST director. Maryland Extension at UMES is administratively separated from academics. Nevertheless, the Extension Specialist is very much involved in the National Seafood HACCP Alliance and is a key player at the national level. He routinely offers Seafood HACCP workshops in our building.

Response to Recommendation #7

The faculty are members of professional organizations (IFT, IAFF). The local IFT chapter is located in Baltimore and occasionally we participate in events. Annual meetings are attended frequently and research results presented.

Response to Recommendation #8

The UMES library is part of the USM library system and provides access to a large number of electronic data bases, access to e-journals as well as interlibrary loan procedures to obtain copies of journal articles not available otherwise. These resources are available and being used by faculty, staff and students.

Mechanisms for following up and Assessing Progress for Food Science and Technology:

All recommendations will be included in the Food Science and Technology program Strategic Plan 2012-2013 academic year as an addendum. Progress towards their accomplishments will be monitored using the current UMES form for the Strategic Plan Progress Report. The form details 1) Indicator Baseline, 2) Indicator Target 3) Actual Indicator Results and 4) Changes Planned, Implemented or underway for each recommendation.