

Adopted: March 12 2013

**ACADEMIC SENATE  
of  
CALIFORNIA POLYTECHNIC STATE UNIVERSITY  
San Luis Obispo, CA**

**AS-758-13**

**RESOLUTION ON PROPOSED NEW DEGREE PROGRAM FOR MASTER  
OF PROFESSIONAL STUDIES IN DAIRY PRODUCTS TECHNOLOGY**

- 1 WHEREAS, There is substantial industry demand for professionally educated graduates prepared to  
2 enter management roles in the dairy foods manufacturing industry; and  
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- 4 WHEREAS, The dairy foods manufacturing industry is one of the largest agricultural industries in  
5 California and agriculture is the largest economic segment of the California economy; and  
6
- 7 WHEREAS, The current undergraduate program for a Bachelor of Science degree in Dairy Science  
8 with emphasis on dairy foods does not meet the substantial demand for qualified  
9 employees in this growing industry; and  
10
- 11 WHEREAS, The Dairy Science Department is proposing to create a Master of Professional Studies in  
12 Dairy Products Technology program made up of coursework, internship, and a  
13 comprehensive exam as a culminating experience; and  
14
- 15 WHEREAS, The College of Agriculture, Food and Environmental Sciences Curriculum Committee and  
16 the Academic Senate Curriculum Committee have carefully evaluated this proposal and  
17 recommend its approval; therefore be it  
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- 19 RESOLVED: That the Academic Senate of Cal Poly approve the proposal for the Master of Professional  
20 Studies in Dairy Products Technology and that the proposal be sent to the Chancellor's  
21 Office for final approval.  
22
- 23 RESOLVED: That the Academic Senate approve the proposal for the Master of Arts in Dairy Products  
24 Technology, if the CSU Board of Trustees rejects the Master of Professional Studies  
25 nomenclature.

Proposed by: Academic Senate Curriculum Committee  
Date: February 12 2013  
Revised: February 19 2013  
Revised: March 12 2013

## **Cal Poly, San Luis Obispo**

### **Summary Statement of Proposed New Degree Program for CSU Academic Master Plan Projection**

#### **1. Title of proposed program:**

Master of Professional Studies in Dairy Products Technology

#### **2. Reason for proposing the program:**

*The dairy foods industry is struggling to find qualified management employees to meet its substantial growth.* The dairy foods industry has experienced rapid growth resulting in a shortage of skilled entry-level managers. The well-known and highly regarded Cal Poly Dairy Science undergraduate program in dairy foods has also grown in recent years. For example, the class that will graduate in the 2010-2011 academic year will have four students who explicitly studied in the dairy foods elective area. The freshman class that entered in academic year 2010-2011 has eight students that have indicated they are studying the dairy foods elective area. The department will continue to encourage this growth, but recruiting and admitting high school graduates into dairy science is a nationwide challenge. We have implemented a minor in dairy foods that has gained popularity among undergraduates, particularly in Food Science. However, even if we found a way to attract and recruit a substantially larger number of freshmen into the undergraduate program, it would be five to six years from this date before the students were ready to enter the job market.

Our solution is to initiate the nation's first professional master's degree in dairy foods. As a modern, progressive one-year program, this Master of Professional Studies in Dairy Products Technology will build on Cal Poly's learn-by-doing tradition while remaining at the forefront of industry needs. The professional, accelerated program will include intensive course work delivered in person and online, completed by a cohort of students in twelve months.

#### **3. Expected student learning outcomes and methods for assessing outcomes:**

Students who successfully complete the twelve-month curriculum and graduate with the degree of Master of Professional Studies in Dairy Products Technology:

- Have obtained mastery of the technical foundation knowledge necessary to enter a management role in large-scale global dairy foods manufacturing organizations.
- Can employ leadership principles and recognize leadership's role in management.
- Are able to use critical thinking and analytical skills to solve problems, evaluate alternatives and predict outcomes in a large dairy food production environment.

- Have developed a strong awareness of the dairy foods industry's place in society and can apply that awareness to formulate plans that benefit their company and society.

#### *Technical Mastery*

The technical mastery that will be developed includes:

- Chemistry, biochemistry and the chemical changes that occur in dairy foods induced by processing
- Analytical chemistry and instrumentation
- Microbiology and its role in both food processing and food safety
- Dairy foods ingredient functionality
- Food safety, quality assurance and control
- Sanitary design and cleaning
- Raw materials receiving and control
- Food laws and regulations
- Food sensory evaluation and process quality
- Unit operations in dairy foods processing

Learning outcomes will be assessed through multiple methods including internship, examination, projects and employer surveys.

#### **4. Anticipated student demand:**

	Number of Students		
	<u>at initiation</u>	<u>3 years after initiation</u>	<u>5 years after initiation</u>
Number of Majors	10	25	25
Number of Graduates	10	25	25

**Indicate briefly what these projections are based upon:**

*Pro forma* financial projections and industry impact analysis.

- 5. If additional resources (faculty, student allocations, support staff, facilities, equipment, etc.) will be required, please identify the resources, indicate the extent of the college's commitment to allocate them, and evidence that college decision-making committees were aware of the sources of resource support when they endorsed the proposal. If the college expects the University to provide additional resources, please identify the resources and anticipated cost:**

The program startup and initial investment funds are the result of a \$5,000,000 donation from Leprino Foods Inc. The funds are to support staff including a new endowed full professor and instructional support positions as well as remodel of

space into expanded classroom facilities. In addition, the MPS program will use the existing plant and facilities at the Dairy Products Technology Center Building (18A). Current faculty will participate in the instruction and WTUs will be reallocated to support. No additional resources will be required from the CAFES.

**6. *If the program is occupational or professional, summarize evidence of need for graduates with this specific educational background:***

According to the US Bureau of Labor Statistics' Occupational Outlook Handbook (2010-11 Edition) the general area of food scientist is growing at a greater than average rate. The US dairy processing industry in particular is growing at a substantial rate in large part due to the increase in exported dairy products. According to the International Dairy Foods Association, the total value of US dairy product exports was \$3.7 billion in 2010, up 65% from 2009. In the past decade the US dairy processing industry has struggled to hire qualified management employees but this has been exacerbated in recent years because of the growth in export demand. In particular Leprino Foods Inc., one of the largest US makers of pizza cheese, is building a new plant every 18 months. Mozzarella cheese production in California in 2010 grew by 14% according the California Department of Food and Agriculture. Additionally, California and national milk production continue to grow and the industry is identifying more aggressive ways to encourage investment in additional processing capacity. According to "Options for a Consumer-Driven Dairy Growth Strategy," prepared by McKinsey & Company for the California Milk Advisory Board in 2007, investment in additional processing capacity is one of the keys to the future viability of the California dairy industry. Given the current difficulty of identifying qualified management employees and the projected growth, the proposed MPS in Dairy Products Technology program will help to maintain a viable industry that accounts for approximately \$65 billion of economic activity in California alone.

**7. *If the new program is currently a concentration or specialization, include a brief rationale for conversion:***

This program will be at a graduate level and target non-traditional students to prepare them to enter the dairy foods industry. We will maintain our current undergraduate program so no "conversion" will occur.

**8. *If the new program is not commonly offered as a bachelor's or master's degree, provide compelling rationale explaining how the proposed subject area constitutes a coherent, integrated degree major which has potential value for students. If the new program does not appear to conform to the CSU Trustee policy calling for "broadly based programs," provide rationale:***

Cal Poly does offer a program of study in dairy foods as part of the Dairy Science BS and also offers a MS in Agriculture specialization in dairy foods. However, this particular program is different enough that it targets a different need.

This intensive, one-year program includes training in applications of dairy ingredients, plant operations, manufacturing processes, dairy chemistry, dairy

microbiology, sensory evaluation and others. Successful completion of the program will enable those with non-dairy technical bachelor's degrees in the physical or life sciences to become well prepared for roles as dairy products managers and technical supervisors. In addition, the program will emphasize leadership training through special study and group/team collaboration.

While not broadly-based, the program targets a specific need in the largest agricultural industry in California.

**9. Briefly describe how the new program fits with the mission and/or strategic plan for the department, college and/or university:**

This program is the result of department level strategic planning that included guidance from many industry partners, particularly those on the department's advisory council. The department's strategic plan developed in 2007 proposed the development of an MPS in Dairy Products Technology as an important strategic initiative. Additionally, the University and Chancellor's Office have promoted the development of graduate degree programs through Continuing Education.

**10. Attach a display of curriculum requirements:**

Table 1. Draft proposed course of study. This proposed course of study is still under development.

1 <sup>st</sup> Quarter	<ul style="list-style-type: none"> <li>Dairy Chemistry</li> <li>Dairy Microbiology</li> <li>Dairy Foods Issues and Practices</li> <li>Seminar</li> </ul>	4 4 4 1 <hr/> 13 Units
2 <sup>nd</sup> Quarter	<ul style="list-style-type: none"> <li>Safety, Plant Sanitary Design and Practice, Environment</li> <li>Product and Process Quality Control, Assurance, and Regulatory Compliance</li> <li>Dairy Processing and Manufacturing I – Unit Operation</li> <li>Seminar</li> <li>Dairy Processing and Problem Solving Experience</li> </ul>	3 4 5 1 2 <hr/> 15 Units
3 <sup>rd</sup> Quarter	<ul style="list-style-type: none"> <li>Dairy Foods Ingredients Functionality</li> <li>Project, Plant and Personnel Management</li> <li>Dairy Processing and Manufacturing II</li> <li>Seminar</li> <li>Dairy Processing and Problem Solving Experience</li> </ul>	4 4 4 1 2 <hr/> 15 Units
4 <sup>th</sup> Quarter	<ul style="list-style-type: none"> <li>Internship</li> </ul>	4
		47 Units

State of California  
**M e m o r a n d u m**

**CAL POLY**  
SAN LUIS OBISPO

**To:** Steven Rein  
Chair, Academic Senate

**Date:** March 25, 2013

**From:** Jeffrey D. Armstrong  
President



**Copies:** K. Enz Finken  
D. Wehner  
B. Golden  
M. Pedersen

**Subject:** Response to Academic Senate Resolution AS-758-13  
Resolution on Proposed New Degree Program for Master of Professional Studies in Dairy  
Products Technology

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I am pleased to approve the above-entitled Academic Senate resolution. The Associate Vice Provost for Programs and Planning is hereby directed to send the proposal to the Chancellor's Office for approval.

Please express my appreciation to the members of the Academic Senate for their attention to this important curricular matter.