


October 25, 2023

TO: Members of the Board of Trustees

FROM: Anne D'Alleva, Ph.D. 
Provost and Executive Vice President for Academic Affairs

RE: Graduate Certificate in Plant-Based Food and Nutrition

RECOMMENDATION:

That the Board of Trustees approve a Graduate Certificate in Plant-Based Food and Nutrition.

BACKGROUND:

The Graduate Certificate in Plant-based Food and Nutrition program provides advanced, evidence-based knowledge in human nutrition from plant-based foods for individuals working in healthcare, private practice, and industry. Due to increasing awareness of the environmental impact and health concerns of animal-based food products, the population of vegans, vegetarians and flexitarians has grown dramatically over the past decade. As more consumers shift to plant-based diets or incorporate more plant-based food products into their diet, healthcare professionals must guide their clients on following nutritionally well-balanced plant-based diets with the goal of health, well-being, and disease prevention/management. Also, it is highly important that the food industry is better prepared to develop highly nutritious plant-based food products with less environmental impact using research and evidence-based knowledge and principles. Students in this program will gain an understanding of nutrition from plant-based diets and apply the knowledge to the development of plant-based food products to promote health and prevent chronic diseases.

The Department of Nutritional Sciences currently offers both an in-person Master of Science in Nutritional Science, a 30-credit online Master of Science in Personalized Nutrition (MSPN), and a 12-credit online Graduate Certificate in Precision Nutrition. The proposed graduate certificate in Plant-Based Food and Nutrition is designed to attract a part-time student audience to a fast-growing and emerging food science and nutritional specialization. The graduate program in Plant-Based Food and Nutrition is a four-course, 12-credit, online graduate certificate program. Two of the four required courses are already developed and offered as part of our existing online program suite. The Plant-Based Food and Nutrition Graduate Certificate program provides advanced knowledge in human nutrition and food science with a primary focus on plant-based food ingredients and their health impacts and is primarily designed for individuals working in healthcare, private practice, and industry. The program anticipates having 5 students enrolled in year 1, 10 students enrolled in year 2, and 15 students enrolled in year 3 and beyond.

Request for New Academic Degree Program

General Information

Name of degree program:	Graduate Certificate in Plant-Based Food and Nutrition
Name of sponsoring Department:	Department of Nutritional Sciences
Name of School/College	College of Agriculture, Health, and Natural Resources
Type of Proposal:	New
Type of Program:	Graduate Certificate
Anticipated Term Initiation:	Spring 2024
Location:	Online
Program Payment Type:	Fee-based

Justification for the New Program

With increasing awareness of the environmental impact and health concerns of animal-based food products, the population of vegans, vegetarians, and flexitarians has grown dramatically over the past decade. The number of vegans increased by 600% from 2014 to 2018, and in response to the consumers' demand, the plant-based food market grew by 29% between 2017 and 2019 in the US. Notably, the global vegan food market size is expected to grow from \$26.83 billion USD in 2021 to \$65.4 billion USD in 2030 (Fig). According to a 2018 Gallup poll, 5% of US adults identified as vegetarian and 2% as vegan. As more plant-based food is incorporated into consumers' diets, healthcare professionals should be knowledgeable of evidence-based principles about plant-based food and nutrition to guide their clients toward health and disease prevention/management. Also, food scientists in the food industry and culinary medicine chefs should be better prepared to develop and prepare highly nutritious plant-based food products and meals as the need for nutritionally well-balanced plant-based food products is expanding.

To meet rapidly-growing interests and demands for professionals knowledgeable of plant-based food and nutrition in the healthcare and food industries, the Department of Nutritional Sciences desires to build a 12-credit online Graduate Certificate Program in Plant-Based Food and Nutrition. This proposed Graduate Certificate Program in Plant-Based Food and Nutrition will provide advanced knowledge in human nutrition and food science, primarily focusing on plant-based food ingredients and their health impacts, for individuals working in healthcare, private practice, and industry. Students in this program will gain a deep understanding of nutrition from plant-based diets and apply the knowledge to developing plant-based food products to promote health and prevent chronic diseases. The UConn Department of Nutritional Sciences maintains a highly reputable human nutrition program, ranked in the top 10th percentile among 103 similar programs in the US . The department already has two established online programs, both offering an excellent curriculum and which meet projected enrollment goals: the Master of Science in Personalized Nutrition and the Graduate Certificate in Precision Nutrition. Therefore, this new Graduate Certificate in Plant-Based Food and Nutrition is expected to be very successful and quickly become a leading program in the field.

The new certificate will sit in a mixed portfolio of in-person and online programs in Nutritional Sciences. As well as the two online programs, the Department of Nutritional Sciences currently offers an in-person Master of Science and PhD in Nutritional Science, online Master of Science in Personalized Nutrition. The proposed Graduate Certificate in Plant-Based Food and Nutrition will add to these offerings by attracting a part-time student audience to a fast-growing and emerging food science and nutritional specialization. The new graduate certificate provides advanced knowledge combining human nutrition and food science, complementing existing online programs. This program requires four graduate-level courses (12 credits in total), two of which are already developed and offered as part of the Department's existing online programs.

Although "Plant-based nutrition" has been a buzzword for several years, there appears to be no other similar graduate online program that would compete with our new Graduate Certificate in Plant-Based Food and Nutrition. No other programs are offered at the graduate level, but the range of certificates that have been developed show the demand for education in this area. Loma Linda University in California offers an online MS in Plant-based Nutrition designed explicitly for registered dietitians. Cosumnes River Community College in California has a Plant-Based Nutrition and Sustainable Agriculture pre-baccalaureate certificate program, requiring three undergraduate courses, one of which must be focused on sustainable agriculture. The online non-credit Plant-based Nutrition Certificate by eCornell lasts six weeks in total and has a formal outcome limited to Continuing Education Units (CEUs). The University of Guelph in Canada offers an online Plant-based Nutrition certificate program through their continuing education unit. Comparison with this limited range of existing programs shows that our Graduate Certificate in Plant-Based Food and Nutrition is unique in that it will provide in-depth, science-driven knowledge needed for professionals in the healthcare and food industries at the graduate level.

Are there similar programs in CT or elsewhere?

There are a number of programs that include aspects of plant nutrition as electives and part of broader nutritional science master's programs but very few specific programs that focus solely on plant-based food and nutrition. In fact, we were unable to locate any similar programs in CT and only one nationally---Loma Linda University School of Public Health in California offers an online MS in Plant-based Nutrition specifically designed for registered dietitians. There are two online certificates in plant-based Nutrition, one at the University of Guelph in Canada and another offered through eCornell, both of which are non-credit and don't require competitive admissions.

What are the desired learning outcomes of the program?

At the end of this program, students will:

- Assess biochemical and physiological functions, metabolic pathways, interactions, and deficiencies/toxicities of macro/micronutrients
- Connect the nutrient composition and concentrations of plant-based foods to their health benefits and disease prevention
- Demonstrate ingredients, formulation, and techniques for processing and manufacturing plant-based food products

- Devise strategies to develop plant-based food products with high nutritional values

Program Description

The graduate certificate in Plant-based Food and Nutrition program provides advanced, evidence-based knowledge in human nutrition from plant-based foods for individuals working in healthcare, private practice, and industry. Due to increasing awareness of the environmental impact and health concerns of animal-based food products, the population of vegans, vegetarians and flexitarians has grown dramatically over the past decade. As more consumers shift to plant-based diets or incorporate more plant-based food products into their diet, healthcare professionals must guide their clients on following nutritionally well-balanced plant-based diets with the goal of health, well-being, and disease prevention/management. Also, it is highly important that the food industry is better prepared to develop highly nutritious plant-based food products with less environmental impact using research and evidence-based knowledge and principles. Students in this program will gain an understanding of nutrition from plant-based diets and apply the knowledge to the development of plant-based food products to promote health and prevent chronic diseases.

Proposed Graduate Catalogue Copy

This certificate program is designed for individuals working in healthcare, private practice, and industry. It provides advanced knowledge in human nutrition, and metabolism, which is crucial for devising plant-based dietary strategies and developing nutritious plant-based food products. Students must complete 12 credits.

Required Courses: NUSC 5200, 5300, 5510 and 5520.

This Certificate is offered by the College of Agriculture, Health, and Natural Resources.

Faculty Involvement

- Christopher Blesso, Associate Professor, Graduate Program Director
- Sangyong Choi, Assistant Professor
- Zhenlei Xiao, Associate Professor in Residence
- Yangchao Luo, Associate Professor

Enrollment and graduate projections

The program anticipates having 5 students enrolled in year 1, 10 students enrolled in year 2, and 15 students enrolled in year 3 and beyond.

Program Evaluation

The program will be evaluated through the following indicators:

- 1) Course evaluations: we will examine course evaluations for all of the courses that are part of the degree program.
- 2) We will conduct an annual anonymous survey of enrolled students to gauge their level of satisfaction and engagement and seek feedback about possible areas of improvement and change.

UConn

3) Degree completion: we will monitor the percentage of participants who complete the degree in a timely fashion, Exit interviews will be conducted with any student withdrawing from the program to identify the reasons for the withdrawal.

4) Destination and Alumni surveys: online surveys for graduates to gather data regarding their employment, satisfaction with the program.

Program Administration

The program will be administered by the Graduate School and the Department of Nutritional Science. The Graduate Program Committee led by the graduate program director (Chris Blesso) will be responsible for admissions and Dr. Zhenlei Xiao will provide student advising and program oversight.

Funding and Financial Resources Needed

No additional funding or financial resources is requested at this time. This program is designed to be entrepreneurial and net revenue positive. This is a fully online program. Two courses for this new graduate certificate programs have already been developed and the other two will be developed for the Graduate Certificate in Plant-based Food and Nutrition program with the support of eCampus. Therefore, there are no additional resources needed for course development. If approved, CETL has committed to providing marketing strategy and web page design, and assistance with setting up the enrollment management funnel and processes.

Who can apply to this program?

Internal applicants (current UConn students enrolled in another UConn degree or certificate program), External applicants (individuals who are not currently UConn students)

Admission Requirements

- Baccalaureate degree in nutrition, or related health and science fields with a minimum 3.0 GPA
- Requirement: College-level biochemistry or equivalent or NUSC 5000
- Recommended Course Preparation: College-level nutrition and food science

Term(s) to which students will be admitted

Summer, Fall, Spring

Program Director Name

Zhenlei Xiao, Associate Professor in Residence