

**DEPARTMENT OF NUTRITION
AND FOOD SCIENCES**

STRATEGIC PLAN

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UNIVERSITY OF RHODE ISLAND

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EXECUTIVE SUMMARY

This strategic plan outlines goals and directions for the teaching, research and outreach programs of the Department of Nutrition and Food Sciences at the University of Rhode Island. Listed below are five overriding goals for future development of the department. Key items related to achieving each goal are listed, as are needed resources.

Goal 1: Expand our nationally recognized research programs in Nutrition and Health, Food Safety and Quality, and Marine Resource Utilization.

- Enhance and expand research in chronic disease prevention and healthy aging by
 - Developing a nationally recognized program in weight management.
 - Developing expertise in nutrition and exercise.
 - Developing the capacity to conduct biochemical assessments related to markers of dietary status, disease risk and aging.
- Expand current research in food safety and quality into the area of detection of bioactive molecules, pathogens and toxins.
- Expand research on marine resource utilization into areas of marine nutraceuticals and biopolymers.

Goal 2: Maintain the quality of the undergraduate program while increasing enrollments in the major and in general education courses.

- Develop the nutrition option under the Nutrition and Dietetics major.
- Develop and implement a marketing plan to increase enrollments.
- Incorporate more experiential learning into the curriculum.
- Utilize undergraduate students to assist in general education and laboratory classes.
- Implement a comprehensive outcome assessment for all undergraduate students.
- Maintain General Education status for the General Nutrition course and develop an additional course covering current issues in food and nutrition.

Goal 3: Strengthen the graduate programs through expanding research opportunities and course offerings.

- Broaden the graduate program to include teaching and research in laboratory based nutrition science and in clinical nutrition.
- Develop and market the MS program to dietetic professionals in the state and surrounding area.
- Increase enrollments in the food science portion of the program.
- Offer new graduate courses in nutrition and exercise, food safety, nutrition and metabolism, and clinical nutrition.
- Increase the percentage of graduate students who are in the PhD program.

Goal 4: Expand our nationally recognized nutrition and food safety outreach programs.

- Expand our ability to develop, implement, and evaluate a variety of innovative educational interventions for targeted audiences.
- Obtain state resources to support the outreach programs.
- Restructure the federally funded Expanded Food and Nutrition Education Program (EFNEP).

Goal 5: Obtain the facilities necessary to effectively support our research, outreach and teaching programs.

- Obtain and renovate laboratory and office facilities for all faculty and staff currently housed in Ranger Hall.
- Obtain and renovate space in Ranger Hall for undergraduate teaching laboratories.
- Move all NFS faculty, staff and graduate students into Ranger Hall.

Resources

To maintain the quality and scope of our programs, it is necessary to maintain our current level of staffing. Retiring faculty and staff must be replaced. Meeting our long-term goals will require additions to the faculty and staff as indicated below.

- A new faculty member with expertise in nutrition and exercise to teach undergraduate and graduate students and to enhance research capacity in nutrition and health.
- A new faculty member with expertise in food safety to teach undergraduate and graduate programs, enhance research in food safety and support the food safety outreach program.
- A new faculty member with expertise in nutrition science to strengthen the laboratory based nutrition research program and enhance research capacity in nutrition and health.
- A nutrition specialist to support the nutrition outreach programs and to supervise undergraduate students in community based experiential learning opportunities.

VISION AND MISSION

The overall mission the Department of Nutrition and Food Sciences is to:

- Promote health and wellness through improved nutrition and food safety behaviors
- Assist Rhode Islands' food production and processing and food service industries to meet regulatory mandates and maintain their economic viability.

Our overall vision for the department is a balanced and integrated teaching, outreach and research program focused in selected areas in which we will achieve national prominence. We will have adequate staff, funding, and space to develop and maintain our programs. All faculty and staff will be housed together with teaching and research laboratories and office and meeting space sufficient to meet our needs. To support our programs and maximize their effectiveness, we will have strong collaborative relationships with individuals and departments within CELS and across the campus, and with state and federal agencies, community based agencies, and other institutions of higher education nation wide.

RESEARCH

The department will have strong, nationally recognized research programs in three areas:

Nutrition and Health: Already strong in the areas of behavior change to reduce risk of cancer and other chronic diseases, and psychosocial and environmental factors influencing food behavior and nutritional risk in diverse and low-income aging populations, the department will develop the capacity to address physiological and biochemical factors related to chronic disease and aging. This capacity will broaden the research in nutrition and health and will position the department to compete for biomedical research funding.

Food Safety and Quality: Already recognized for applied research in food safety and quality, the department will expand the program in the area of detection of bioactive molecules, pathogens and toxins. These are areas of high national priority; research in these areas will provide support for the outreach and teaching program.

Marine Resource Utilization: Already recognized for expertise in surimi and fish mince technology, and cryostabilization of fish muscle, the department will expand into other areas of bioconversion of marine resources into high value products. Examples include bioconversion of fish processing waste for aquaculture feed, seafood flavorants and nutraceuticals. This research supports the seafood industry and can contribute to economic development within the state.

TEACHING

The department will have a strong undergraduate program in nutrition and food sciences that is recognized in the Northeast region for its excellence. We will maintain accreditation status for the undergraduate dietetics program; the program will be adapted as necessary to accommodate changes occurring in the field of nutrition and in the practice of dietetics. The nutrition option will become a well-defined program with increased numbers of undergraduate students. The undergraduate programs will emphasize experiential learning; all students will have a field placement, or have the opportunity to work with faculty and graduate students on research projects. There will be adequate support for faculty providing students with experiential learning experiences through formal experiential learning courses, laboratory classes or traditional lecture courses that incorporate a significant number of practical assignments. To insure excellence in student education, the department will have in place a system for comprehensive outcome assessment that will serve as a basis for evaluation and revision of our programs. The department will have an effective recruitment plan to insure adequate enrollment in the major.

The department will have strong, focused graduate programs and will maintain accreditation of the Dietetic Internship Program. The nutrition program will provide students with a background in both nutrition science and community nutrition. Nutrition students will have a range of opportunities for research in both lab-based and applied areas. There will be a focused and viable graduate program in food science, with an adequate number of graduate students to maintain a critical mass and support faculty research. The program will have a viable number of PhD students. There will be an effective recruitment program and adequate support for graduate students.

OUTREACH

The department will maintain its strong, nationally recognized nutrition and food safety outreach programs directed towards improving nutrition-related and food safety practices of citizens of the state and nation. Outreach programs will also assist Rhode Island's food production, processing and service industries. These programs including the Family Nutrition Program, the Expanded Food and Nutrition Education Program (EFNEP) and the Food Safety Initiative will continue to be recognized both within and outside the university for their excellence and importance to the state and the nation. The programs will be supported with adequate internal as well as external funding, and with adequate staff.

CURRENT STATUS

BACKGROUND

In 1977, the Department of Food Science and Nutrition was formed from the merger of the Departments of Food Science and Technology and Food and Nutrition. In the early 1980's the department moved from the Kingston Campus to the Food Science and Nutrition Center in West Kingston. The building, which is almost 3 miles from campus, provided adequate space for offices and research laboratories for the entire department. Because of the large number of undergraduate students interested in nutrition, nutrition faculty traditionally had heavy teaching loads with less time available for research and graduate training. In contrast, the Food Science program drew a small number of undergraduates and the focus of the program was on graduate education and research. When taken as a whole, the department had a very strong program with large undergraduate and graduate enrollments and excellent research productivity as evidenced by external funding and publications. Over the years, the number of faculty positions in the department declined, as was the case across the campus. By spring 1998, there were 10 tenure-track faculty, five in food science and five in nutrition. Between June and December 1998, three faculty members, all in food science, retired or left the university and one professor began teaching part-time in preparation for his retirement in June 2001. Thus, only one full-time, tenure track faculty member remained in the food science portion of the program. The Department was unable to obtain approval to hire any new faculty in food science. As a result, the department eliminated the food science undergraduate program and limited the scope of the graduate program. The department name was changed to Nutrition and Food Sciences and the undergraduate program was reorganized.

The department currently has 7 faculty members in tenure-track positions, one full time instructor, and 3 CE professionals. One faculty member and the instructor joined NFS in fall 2001. The department is remarkably productive given its' size and responsibilities. The department has a relatively large undergraduate program and averages about 25 graduate students. The department provides services courses for the university. It administers two accredited dietetics programs. CE professionals include a nutrition specialist who also teaches 3-4 courses per year in the undergraduate dietetics program; a non-tenure track faculty member and a research associate IV direct the food safety education program. The small number of faculty and staff limits our ability to expand into new areas and will create a problem when arranging release time for research or administration.

Faculty and staff are currently housed in three different locations. Nutrition faculty offices, graduate students and the department office are in Ranger Hall. However, space in Ranger is so limited that we do not have acceptable offices for two of faculty currently located in Ranger and we do not have a functional research lab for our new tenure-track faculty member. One food safety education program director is housed in the CE center and the other in West Kingston. Offices and research laboratories for the food science

faculty, staff and graduate students are in West Kingston. The teaching lab for the foods courses is currently located in Woodward Hall; we do not have a lab for the Nutrition Assessment course.

RESEARCH

Strengths:

Overall, the major research thrusts of the department are compatible with the goals of USDA as stated in the USDA Strategic Plan for FY 2000-2005.

NFS has a national reputation for research in two nutrition related areas: behavior change to reduce risk of chronic disease; and factors influencing food behavior and nutritional risk in diverse and low-income aging populations. External funding from agencies such as USDA and NIH support this research. Strong collaborative ties have been established with scientists in other institutions throughout the US and with researchers in other disciplines within URI. Faculty members are involved in two AES regional research projects.

The NFS food safety research program has focused on the rapid detection of quality and safety markers in food systems. The program has gained national and international recognition in the areas of seafood quality and the development of biosensors in detection of food pathogens.

The research program in marine resource utilization has also achieved national and international recognition. Current strengths are in the areas of surimi and fish mince technology and cryostabilization of fish muscle.

Weaknesses:

The greatest limitation in nutrition-related research is the department's weakness in laboratory-based nutrition research. The lack of laboratory based research limits the areas in which students can do research.

The food science research program is limited by lack of faculty and by the small number of graduate students entering the program. Only two people are involved in food science related research, C. Lee, and L. Pivarnik. However, L. Pivarnik's primary responsibility is the Food Safety Education Outreach Program. Dr. A.G. Rand, in collaboration with faculty in Chemistry and Physics, developed a nationally recognized program in use of biosensors for rapid detection of food pathogens. Dr. Rand has retired, however some research is continuing under his direction and that of his postdoctoral fellow. Although funding is available for work in biosensors, we lack the resources to continue work in this area.

TEACHING

The Department of Nutrition and Food Sciences offers one undergraduate major, Nutrition and Dietetics. Within this major, students select either the dietetics or nutrition option. Most students select the dietetics option. Over the last five years, we have graduated an average of 30 students per year in dietetics making this one of the largest dietetics programs in New England. The dietetics program is accredited by the American Dietetic Association and is required for students who plan to become Registered Dietitians. Following graduation, students must complete an internship and pass a national examination in order to become registered. Students may apply to any accredited internship throughout the United States; admission to internships is competitive. Students wanting to study nutrition but do not want to become a Registered Dietitian select the nutrition option. This option requires a core of basic science and nutrition courses; students are required to complete a minor field of study and at least three credits of an experiential learning class.

The department offers a MS in Nutrition and Food Sciences. The PhD is offered under the Biological Science umbrella. In the graduate program, students emphasize either nutrition or food science. The department also administers a Dietetic Internship that is accredited by the American Dietetic Association. In 2000, the internship program was integrated into the graduate program so that to be admitted to the internship program students must first be admitted to a graduate degree program. The current nutrition graduate program emphasizes community and applied nutrition. The food science graduate program is an interdepartmental program in which students take courses from and work with faculty in a variety of departments.

The department provides service courses for the university. The General Nutrition course (NFS 207) is required for nursing students and also serves as a natural science course within the University's General Education Program. More than 1200 students take the course annually. In addition, one section of the senior level clinical nutrition course is taught for the pharmacy program (enrollments 75-80).

Strengths:

The department is committed to excellence in both the undergraduate and graduate programs. Good teaching is expected of all faculty; 3 NFS faculty members have received college or university awards for teaching excellence. The department is student centered and faculty view advising of undergraduate and graduate students as an important part of their responsibilities. The department is poised to move into the area of student assessment. There is also a strong commitment to experiential learning.

The department has strong, highly regarded Dietetics programs. Both the undergraduate dietetics option and the Dietetic Internship have been recently accredited; both programs received very positive evaluation. The programs have strong leadership (C. English, Dietetics; G. Greene, Internship). The Internship program provides the only opportunity

for students with an undergraduate background in dietetics to become registered without leaving the state.

The general nutrition course provides a solid basis in nutrition for students across the university. The course serves as a recruiting tool for the department.

The department has received a Champlin Foundations grant to equip a new foods lab and a lab for nutrition assessment. These labs will enhance our teaching of several undergraduate courses and will create new opportunities for students to do independent studies.

Weaknesses:

The nutrition option under the nutrition and dietetic major has not been well defined and therefore has not been effectively marketed to undergraduates. Few students select this option.

There are limited course offerings at the graduate level.

The lack of adequate staffing in the food science area has resulted in minimum offerings of food science courses; enrollment in these courses is usually low and the courses cannot always be offered as scheduled. It has also resulted in a decline in the number of students enrolled in the food science graduate program. We no longer attract enough new students in the food science area to maintain a critical mass.

The department has an outstanding food safety outreach program. However, we are unable to offer formal coursework in food safety at the graduate level.

The department is limited in its capacity to provide training in topics relating to nutrition and exercise. This is an area in which there is great demand; we are the only nutrition department in the Northeast that does not offer this training.

Although students are encouraged to enroll in one of our courses related to experiential learning, only the students in the nutrition option are required to do so. Resources to place and supervise the large number of students in the dietetic option in experiential learning courses are not available.

OUTREACH

The NFS food safety and nutrition outreach programs includes both Cooperative Extension programming and non-CE outreach activities. The objective of the Food Safety outreach program is to improve food safety by controlling or eliminating foodborne risks. Training and other educational outreach activities target professionals including teachers, health care professionals, food processors, daycare center staff and others. These professionals, in turn, provide training for consumers. Programming for the food industry focuses on assisting groups such as the seafood, meat and poultry

processors, fruit and vegetable growers, and food service workers by providing training mandated by legislation as well as providing information on current topics related to food safety.

Nutrition outreach programs are directed at improving dietary quality, improving food resource management, and reducing food insecurity in limited-resource families. Education is targeted to low-income individuals, families with young children, and seniors. A key focus of the CE program is to improve nutrition knowledge in the targeted groups, leading to a positive change in food-related behaviors and improved nutritional status. Consistent nutrition education messages are reinforced in multiple ways and emphasize ease of food choice, economy of purchase, and balance, variety, and moderation as the basis for a sound diet. The federally funded Expanded Food and Nutrition Education Program (EFNEP) is part of the nutrition outreach program. This program, which targets low-income families, uses paraprofessionals to carry out the education program. A Nutrition Specialist (L. Sebelia) directs this program with a part-time staff of an Educator 3 (D. LaVallee) and five paraprofessionals. The Educator 3 also coordinates the statewide Food Security Coalition and works with the Department of Human Services to improve access to federal nutrition programs such as the Food Stamp Program, Women, Infants and Children program (WIC) and Head Start.

Although not part of the CE program, activities relative to the elderly are also part of the department's overall outreach. The Senior Nutrition Awareness Program (SNAP) is targeted at limited income elderly. SNAP activities include workshops and newsletters that have reached over 6000 elderly in Rhode Island and Connecticut.

Strengths:

The department has strong outreach programs in food safety and nutrition that are externally funded and nationally recognized. The mission of the food safety and nutrition outreach education programs is consistent with the Healthy People 2010 health objectives for the nation. These objectives include educational community-based programs, food safety, health communication, nutrition, and physical activity and fitness as focus areas. The mission is also consistent with the USDA Strategic Plan for FY 2000-2005. Over the past five years, these programs have generated over four million dollars in external support. The programs have been successful in large part because program directors have been skilled in forging collaborations with a variety of partners including federal and state regulatory agencies, state government agencies, other land grant institutions and institutions of higher learning, schools, trade associations, health care organizations and community based agencies serving high risk, low-income and other special populations.

The federally funded Rhode Island Food Stamp Nutrition Education Program is unique in that it utilizes social marketing techniques to provide free nutrition education programming to an estimated 34,000 food stamp eligible households delivered through the Rhode Island Public Transportation and Providence Public Library systems. An additional outreach component is a weekly nutrition column in the Providence Journal with an estimated weekly readership of 225,000. These programs also represent an

opportunity for students to gain important experiential learning in community based education.

Despite reduced funding, EFNEP continues to increase the number of youth, minorities and limited resource families reached in Rhode Island's core cities. External funding has begun to enhance program delivery by enabling EFNEP to address specific issues in targeted minority neighborhoods.

The CE food safety specialist (M. Patnoad) developed the Rhode Island Department of Health curriculums for a 15-hour Certification and a 6-hour Recertification course in food safety mandated for food service managers. These courses are taught through the URI College of Continuing Education. Of the 5,000 foodservice workers, managers, teachers and food safety professionals who are currently certified by the Department of Health, at least 60% have participated in the URI courses. In 2000, Food safety specialists received funding from CREES/USDA for a three-year research/outreach project to use USDA and FDA good agricultural practices guidelines to integrate food safety principles into small farm production of fruits and vegetables in New England.

Weaknesses:

A heavy reliance on external funding has forced outreach programs to become less diverse in their programming efforts. Changes in the focus of external funding agencies may force the program to shift focus from one target audience to another leading to the termination of a successful program. Furthermore, once the funding ends it is difficult to maintain the integrity of any program regardless of its success because of limited resources. A further problem with reliance on external funding has been the lack of state dollars in the form of salaries available for match as required by some funding agencies.

Federal funds for the EFNEP program have decreased significantly forcing a reduction in programming. Staffing has been reduced but the number of potential clients has increased and will continue to do so as the economic situation worsens. Because of limitations in resources, efforts have been confined to two targeted groups: children and young families at risk. Welfare reform has changed the timing of a large percentage of the EFNEP adult programming from traditional daytime hours to available times after work. However, union personnel policies restrict EFNEP staff from working outside their traditional 8:30 AM to 4:30 PM workday. Many potential clients cannot be served because of this inflexibility in scheduling.

Personnel available to deliver the outreach programs are limited. Two professionals (1.55 FTE) are responsible for obtaining funding and delivering the food safety education program. There is one professional directing the nutrition outreach program. However, a significant portion of her time is allotted to teaching undergraduate courses in the dietetic program. Current CE personnel are fully engaged in fulfilling their commitments to the external funding agencies; there is little opportunity to pursue new programming opportunities.

GOALS

RESOURCES

An overriding goal is to obtain adequate on-campus space for NFS faculty and staff. The physical separation of faculty and staff make communication and collaboration difficult. Our goal is to have all NFS faculty, staff, and graduate students located in Ranger Hall with appropriate office space, and research and teaching laboratories.

A further goal of the department is to secure adequate personnel so that faculty and staff can obtain appropriate release time for research and administration. Lack of personnel limits opportunities for seeking increased funding for research and outreach programs and limits our ability to allow adequate release time for research, outreach and administration.

RESEARCH

Enhance and expand research in chronic disease prevention and healthy aging.

There is growing evidence that lifestyle factors such as diet and activity patterns affect both chronic disease risk and how people age. Because of the aging of the American population, the increasing incidence of obesity and related chronic diseases, and the concern over rising health care costs, research relative to chronic disease and aging will continue to be research priorities at the federal level. Recently, recognition that obesity is a major public health problem in the United States has led national health authorities such as the Surgeon General's Office, Centers for Disease Control and the National Institutes of Health to encourage heightened efforts focused on reversing the current trends of increasing prevalence and severity of obesity and associated chronic diseases. Therefore, the department anticipates that this is a critical area for continued research and a priority at the national level.

The department already has a national reputation for research in the areas of behavior change to reduce chronic disease risk and environmental factors influencing food behavior and nutritional risk in diverse and low-income aging populations. These research programs will be enhanced through development of research capacities in physiologic and biochemical areas related to nutrition, obesity, energy balance, macronutrient regulation and exercise.

Develop a nationally recognized program in the area of weight management.

Over the past four years, NFS faculty members have collaborated with faculty in Exercise Science and Psychology in research on weight management with particular emphasis on understanding and preventing recidivism. This research was funded in part by American Cancer Society. With the addition of K. Melanson to the faculty (September, 2001), we now have the ability to conduct laboratory-based studies of macronutrient metabolism

and energy balance regulation to complement current research in behavior change and clinical assessment of weight loss programs. This research will complement the research on chronic disease risk reduction because obesity is a major contributing factor to hypertension, coronary heart disease, and type 2 diabetes.

Develop expertise in nutrition and exercise.

Physical activity plays an important role in weight management, reduction of disease risk and healthy aging. The department needs to add a laboratory-based nutrition scientist with expertise in physical activity, energy expenditure, and the interplay between nutrition and exercise. This expertise will complement the department's current research on chronic disease risk reduction, aging, and obesity. The recent addition of K. Melanson to the faculty has increased the department's research capacity in energy balance regulation, macronutrient metabolism and body weight management. The addition of a faculty member with expertise in energy expenditure specifically relating to physical activity and diet-exercise interactions will further expand the department's capabilities to perform well-rounded research in these areas.

Develop capacity to conduct biochemical assessments related to markers of dietary status, disease risk and aging.

With the capacity to conduct biochemical assessments, the nutrition research program can conduct comprehensive research in disease prevention and healthy aging. The ability to look at behavioral, physiological and biochemical factors will put the department in a position to apply for biomedical research funding. Further, a person with this expertise can study the effects of biologically active components in food and thus contribute to both the nutrition and food science research program.

Maintain the current food safety and quality program and expand research in the area of detection of bioactive molecules, pathogens and toxins.

Food safety is a national and international concern. Several research initiatives have been established by national agencies to address this critical area. These include the Federal Food Safety Initiative, the Sea Grant Initiative, National Science Foundation, FDA and USDA. An objective of the USDA Strategic Plan (2000-2005) is to protect the public health by reducing the prevalence of foodborne hazards. Ensuring the safety of the food supply is also a top priority of FDA. Changes in the food supply, emergence of new food borne pathogens, ability of existing pathogens to overcome traditional food barriers such as temperature, and the increasing concern over bioterrorism have heightened the need to enhance our ability to rapidly identify risks to the food supply and to communicate effectively with the public about food safety. In addition, changes in the food supply such as the use of genetically modified foods and addition of biologically active substances to a variety of foods products increase the need for careful evaluation of the safety of these commodities. The department already has strength in the area of rapid detection of food quality and food pathogens. Our goal is to expand the research program in the area of

detection of bioactive molecules, pathogens, and toxins in foods. Funding exists for this type of research; this research will also support our outreach and teaching programs.

Gain national prominence in marine nutraceuticals and biopolymers; expand marine resource utilization for economic development.

Food-related business enterprises from food manufacturing to food service contribute greatly to state and regional economies throughout the United States. Food companies in Rhode Island are small; seafood is the largest food commodity in the state. Dwindling fish resources have led to efforts to maximize utilization of available seafood and to add value to seafood products. Research and outreach in marine resource utilization can provide important support for the state and regional seafood industry and contribute to the economic growth of the region. Research should also address environmental issues since food production and processing are major contributors to water pollution and waste generation.

TEACHING

Maintain accreditation of the undergraduate dietetic program.

Dietetics is our largest undergraduate program. The American Dietetic Association provides a list of competencies that must be met in by undergraduate programs in dietetics. To maintain accreditation, the program must demonstrate that the training provided will allow students to meet all competencies. The department will continue to make any changes necessary in the curriculum to maintain program accreditation. The program is reaccredited every 10 years, with a 5-year outcome-based review.

Increase the enrollment in the nutrition option under the Nutrition and Dietetics major.

Increasing undergraduate enrollment in the department is largely dependent upon increasing enrollments in the nutrition option. Increasing the dietetic program enrollments is unwise because opportunities for internships are limited. Further, the nutrition option allows students with interest in nutrition but not in dietetics to design programs that will meet their interests and needs. Our specific goal is to have 30 students in this option by year 5 of this plan. Many students transfer into the NFS major as sophomores or juniors from other majors or from other institutions. Thirty students represent approximately 10 students per year in the sophomore through senior class.

Offer training in nutrition and exercise.

URI is one of the few, if not the only program, in the Northeast that does not offer training in exercise-related nutrition science or sports nutrition. Training in this area is important for health professionals and for students in general. The lifestyle changes recommended to decrease risk of chronic disease include both diet and exercise. Nutrition practitioners are required to understand basic exercise physiology, the

relationship between nutrition and exercise, and how diet and exercise interact in the treatment of obesity and chronic diseases. They must also be prepared to answer questions from the general public and from athletes on topics such as effects of exercise on nutrient needs, use of supplements and the effect of nutrition on performance. Inaccurate information about nutrition and exercise is widely disseminated by the media and advertisers as well as by coaches and teachers. Student interest in the area of nutrition and exercise is high; courses should draw a large number of students from physical education, nutrition and dietetics, student athletes and the general student body.

Offer two undergraduate courses that qualify as Natural Sciences under the University's General Education Program.

The department's involvement in the General Education Program serves several purposes. The General Nutrition course is a service course for the University as there are limited non-laboratory courses available to students in the Natural Science division. Secondly, this course serves as a recruitment tool to bring students into the NFS major. In addition, general education courses increase student credit hours for the department and the college. The university is in the process of reviewing all courses currently in the General Education program. The courses in the Natural Science division are scheduled for review between November 2002 and March 2003. We have two goals in relation to the General Nutrition course. First, we will continue to offer the course as a part of general education. Changes in the General Education program will require significant changes in the course, in particular, incorporating assignments designed to improve student skills in areas such as writing and quantitative thinking. Secondly, we plan to continue to limit the class size. Historically, we have offered one section of 500 students each semester. With our recent hires, we are now able to offer 3 - 4 sections per semester each with enrollments between 100 and 250. Although not ideal, these smaller sections are more appropriate for both students and faculty.

The department also plans to develop and teach an additional general education course. We propose offering an introductory level course which addresses current issues in food and nutrition including functional foods, dietary supplements, potential effects of biotechnology on the human food supply, environmental impacts of food production and food processing and understanding the scientific method and the concept of risk benefit. As a Natural Science course, this course should appeal to a number of students across the university and should serve as a recruiting tool for the NFS program.

Incorporate more experiential learning into the curriculum.

To become competent professionals, students need both theoretical knowledge and opportunities for experiential learning. Therefore, involving students in experiential learning opportunities is a priority for the department. Currently, many students gain experience through a formal Field Experience course that provides students with the opportunity to gain experience in community-based nutrition programs. Students may also gain experience through an Independent Study course under guidance of individual faculty members. Currently, students in the nutrition option of the major are required to

complete three credits in one of these courses. Students in Dietetics are encouraged to enroll in one of these courses but are not required to do so because of limited faculty time for supervising students and for organizing student placements. The department goal is to insure that all undergraduate students complete a minimum of three credits of experiential learning courses.

In addition, the department is changing its traditional course work offerings to incorporate additional experiential learning opportunities. Also, we have added two new lab courses that are now required in the dietetics option. The increased number of laboratory courses requires that we maintain at least our current level of graduate assistantships in order to properly staff these labs.

Develop and implement comprehensive outcome assessment for undergraduate and graduate programs.

Outcome assessment of academic programs is important for accreditation of department programs as well as of the university. The college is purchasing an electronic portfolio system to help departments design outcome assessment procedures and to evaluate their academic programs. The department will utilize this program to assess our programs and make changes in our programs as necessary.

Strengthen the graduate program.

Broaden the graduate program to offer graduate training in areas of lab-based and clinical nutrition.

Over the years, the number of research areas available to graduate students has declined markedly due to a decreased number of faculty and the need to maintain our undergraduate dietetics program. Of greatest concern is the loss of lab-based nutrition related research. Currently, graduate research opportunities in nutrition reflect the department's strengths in behavior change and nutrition education interventions in aging; students have limited opportunity for research and training in lab-based research or in clinical nutrition. Expanding training and research in these areas will strengthen the training provided to current graduate students allowing us to draw on a wider pool of potential students.

Increase the percentage of graduate students who are in the PhD program.

The department seeks a better balance of PhD to MS students. Currently, we have 3 PhD candidates in nutrition; this is not enough to provide a critical mass. PhD students need opportunities to interact with other PhD students and play an important role in the training of MS students.

Develop and market the MS program to dietetic professionals in the state and surrounding area.

With the national concern over the increasing costs of health care, there is growing pressure on dietitians and other health professional to demonstrate that their interventions are beneficial and cost effective. Training dietetic practitioners to conduct outcome-related research as part of their professional positions is important for the future of the profession. Nationally, over 50% of Registered Dietitians have MS degrees. Currently, dietetic professionals in Rhode Island are likely to attend the University of New Haven weekend nutrition graduate program or pursue a MS in areas other than nutrition so that the degree can be obtained while they continue their full time employment. These nutrition professionals represent a potential pool of MS students than can be tapped with minimum adjustment of our current program.

Increase enrollments in the food science portion of the program.

Traditionally, the food science graduate program has been a very strong program attracting a significant number of MS and PhD students. However, the loss of most of the food science faculty required that the program be restructured. The program now provides training in a limited number of areas and is set up as a interdepartmental program. The majority of a student's required course work is in chemistry, physics, microbiology or biochemistry as appropriate for the student's area of specialization. Students entering the program are required to have a degree in Food Science since we can no longer offer enough courses to make up for lack of background in the discipline. With the reduction in the scope of the program and the number of faculty, the number of students entering the graduate program has declined to the point that the viability of the program is threatened. Increasing the number of graduate students is critical to allow us to offer a limited number of food science courses and to allow faculty to maintain their research programs.

OUTREACH

Maintain the current externally funded nutrition and food safety programs.

The Family Nutrition Program will continue to provide valuable nutrition resources to food stamp eligible families and seniors throughout Rhode Island. EFNEP will continue to reach income appropriate audiences with the educational tools necessary to make food-related behavior changes. We will continue to provide the mandated food safety training to meat, poultry, fruit and vegetable produces as well as the food service industry.

Expand the development, implementation, and evaluation of a variety of innovative educational interventions for targeted audiences.

The goal is to help individuals of all ages increase the quality and years of healthy life by improving diet quality and reducing the risk of foodborne illness and improving access to federal nutrition programs. The outreach program provides science-based information to

help individuals gain the knowledge, motivation and opportunity they need to make informed decisions about food, nutrition and food safety. In addition, the program is designed to encourage local and state leaders to develop community and statewide efforts that promote healthy behaviors and create healthy environments. In concert with other members of the Rhode Island Food Safety Task Force, new food safety education programs will be designed to address new issues as they arise.

Obtain state resources to support the outreach program.

It is of critical importance that there is a statewide commitment to the nutrition and food safety outreach programs. The commitment must involve the university as well as the state and must result in monetary support for programming. Such support will aid in obtaining external funding because matching funds will be available as required by some funding agencies. Furthermore, support personnel (program assistants) are needed to carry out existing program activities and to allow the program to move into new areas as USDA and other agencies develop additional initiatives to protect the health and well being of Americans. Because programs are dependent on external funding, current personnel have to fulfill the requirements of their grants and are not able to take advantage of new funding opportunities as they become available. In order to seek new funding, additional personnel are needed.

Restructure the EFNEP program.

EFNEP is structured with a paraprofessional model of operation. This model is not cost effective in Rhode Island. With the decrease in federal support for the program, alternatives to delivering the program must be explored.

PLAN

RESOURCES

Faculty members are part of a team working on establishment of a Center for Nutrition, Hunger, and Food Studies at the University of Rhode Island. The Center will enhance student learning and contribute to the research and outreach programs of the department. The plan includes renovation of Ranger Hall. This renovation will provide adequate office and laboratory spaces for the entire NFS department. The team is currently requesting funding for the architectural and engineering design work.

The department will request new faculty and staff as indicated below.

RESEARCH

Enhance and expand research in chronic disease prevention and healthy aging.

Faculty members will continue to seek funding to maintain and expand ongoing programs. Participation in the two AES regional research projects will be maintained.

Develop a nationally recognized program in the area of weight management.

NFS faculty members will continue their collaboration with faculty in Exercise Science and Psychology in research on weight management. Current research will be completed and manuscripts submitted for publication. A new proposal will be submitted to obtain funding for continuing research in this area. K. Melanson's research interests will be integrated into the proposal to expand the scope of the research.

Further efforts to expand in this area will depend on a hiring a new faculty member.

Develop expertise in nutrition and exercise.

The department will request a new hire for a laboratory based nutrition scientist with expertise in physical activity and nutrition, diet-exercise interactions and energy expenditure. Such scientific interests will complement current department research in areas of energy balance regulation, macronutrient metabolism, body weight management, healthy aging, and chronic disease prevention.

Develop capacity to conduct biochemical assessments related to markers of dietary status, disease risk and aging.

The department will request a new hire for a laboratory based nutrition scientist with expertise in biochemical assessment for dietary status in aging and chronic disease.

Maintain the current food safety and quality program and expand research in the area of detection of bioactive molecules, pathogens and toxins.

The current food safety research on use of an ammonium probe for seafood quality and microbiological assessment of fresh fruits and vegetables will be continued.

The department will request a new position to expand food safety research into the area of detection of bioactive molecules, pathogens and toxins. This position will also provide support for the food safety outreach program.

Gain national prominence in marine nutraceuticals and biopolymers; expand marine resource utilization for economic development.

C. Lee will be on sabbatical fall semester, 2002 and will work on marine biopolymers. After returning from sabbatical, his efforts will be directed at identifying targeted products and technology necessary for production of marine nutraceuticals and biopolymers with potential industry partners and seeking funding for this research. Current research activity in bioconversion of seafood processing waste into specialty aquaculture feed ingredients in collaboration with local seafood, aquaculture, and feed manufacturing industries will be continued.

TEACHING

Maintain accreditation of the undergraduate dietetic program.

Currently, the department is able to meet all of the competencies required by the American Dietetic Association. The department is able to meet all competencies because, beginning Fall, 2001, we were allowed to hire an instructor to teach the food-related courses. Although L. Sebelia is CE educator, a portion of her position is devoted to teaching two courses required in the dietetics program. To insure that all competencies continue to be met, it will be necessary for the department to maintain the instructor position and to continue to have L. Sebelia teach in the program. In addition, when M. Caldwell retires, it is essential that she be replaced with a person with expertise in clinical nutrition in order to maintain accreditation.

Increase the enrollment in the nutrition option under the Nutrition and Dietetics major.

The department will develop four concentrations: Nutrition and exercise; Food science; Health professions (pre-med, pre-physical therapy, etc.); and Nutrition and communication. Students will still be able to develop their own concentration following department guidelines. All options will draw on courses already available within the department as well as selected courses from other disciplines. However, the nutrition and exercise concentration will require development of one new NFS course in sports nutrition. We anticipate that this concentration will draw the largest number of students.

The food science concentration will provide students with enough training in food science to prepare them for positions within the food industry. Past graduates from the NFS food science program hold prominent positions in various food companies in the New England region. Students completing the new food science concentration are expected to find excellent employment opportunities in the region. Recruiting several students a year into this option will allow us to offer our current food science courses. To further increase enrollments in the food science related courses, the department will offer a formal minor in food science for students in other science related disciplines.

To develop the concentrations, the department will consult appropriate departments to identify specific course requirements and insure their availability to students in nutrition. We will also explore the possibilities for internship and other practical experiences in each of these areas.

The department will market the Nutrition and Dietetics major by creating recruitment materials, recruiting in undergraduate classes such as the general nutrition course, and having upperclassmen serve as mentors to incoming students.

Offer training in nutrition and exercise.

As soon as possible, the department will offer a 200 or 300 level course in sports nutrition. Although available to the campus community, this course should be of particular interest to students in Nutrition and Dietetics, physical education and other health related fields. This course will be critical to development of the nutrition and exercise concentration under the nutrition option. Temporarily, K. Melanson can teach this course. Further development of this area will require addition of a faculty member with extensive training in this field to develop a graduate level course in nutrition and exercise and conduct research in this area.

Provide two undergraduate courses that qualify as Natural Sciences under the University's General Education Program.

When the guidelines for approval of courses for general education become available, NFS will immediately move to have the General Nutrition course approved. The department has already begun to offer more sections of the class each semester in order to reduce class size and make it possible to meet the new requirements. In addition, the department will develop an undergraduate teaching assistant program. Senior undergraduate students will serve as mentors and teaching assistants for students involved in the introductory classes. They will help with grading assignments and other tasks that will be necessary under the new general education guidelines.

Development of the new course in contemporary issues in food and nutrition is dependent on hiring a faculty member with expertise in food safety. This position will also be key to maintaining the food science research program and will support the food safety outreach program.

Incorporate more experiential learning into the curriculum

To increase the amount of experiential learning within existing courses and to adequately staff the current laboratory classes, the department will need to have state-supported graduate assistants to assist faculty. In addition, the department will enlist senior undergraduate students to serve as teaching assistants in some of the undergraduate courses. This will provide these students with practical experience and will allow the department to use our limited number of state-funded graduate assistants to help in the advanced courses. The department will begin formally recruiting undergraduate students in fall, 2002.

Requiring all undergraduate students to obtain a minimum of 3 credit hours in Field Experience and/or Special Projects will require an increase in resources. Initially, the department will attempt to assign a graduate assistant to set up and supervise the required field placements. A long-term goal is the hiring of an instructor or a CE nutrition specialist to fill this role. Linking this position to the outreach program would strengthen the interactions between teaching and outreach as well providing support for the outreach program.

Develop and implement comprehensive outcome assessment for undergraduate and graduate programs.

A faculty member (C. English) has obtained a sabbatical leave for Fall, 2002, which will be used to design and implement the system for NFS. The assessment program will be piloted spring, 2003. By fall, 2003 all students will be developing a portfolio. These dates are based on the assumption that the necessary software will be available as planned.

Strengthen the graduate program:

Increase the number of graduate level courses.

A graduate level course in Energy Balance and Metabolic Regulation will be developed and taught by K. Melanson. Additional graduate courses, dependent on new faculty, will include Nutrition and Exercise, Clinical Nutrition, and Food safety.

Increase opportunities for lab-based and clinical nutrition research.

As K. Melanson develops her research program, there will be opportunities for graduate student research in energy metabolism. Additional research opportunities will develop as new faculty members are hired. All faculty members will be expected to develop an externally funding research program and provide support for graduate students.

Develop and market the MS program to dietetic professionals in the state.

When we have the ability to offer a new graduate level course in Clinical Nutrition, we will begin to market the graduate program to dietetic professionals in the state and region. The new course will be offered in Providence and will serve as a way to introduce students to the program. Our plan is to tap this pool of potential students for the program by providing required courses in the evenings and encouraging job-related research.

Increase enrollments in the food science portion of the program

Increasing enrollments will be dependent on increasing the number of assistantships supported by external funding. Addition of a new faculty member in food safety will increase funding possibilities and research opportunities for graduate students.

Increase the number of PhD students.

With an increase in the graduate student offerings and opportunities for research, we will increase recruitment into the PhD program. Nationally there is much discussion concerning the design of nutrition graduate programs particularly at the PhD level. The department will adapt the graduate program as necessary to follow national guidelines.

OUTREACH

Expand the development, implementation, and evaluation of a variety of innovative educational interventions for targeted audiences.

CE personnel will continue to develop and carry out their programs and to compete for funding. We will request an additional person for the nutrition outreach program. This person will also support the teaching program by setting up and supervising students in outreach related field placements. We will also request a faculty member in food safety. This person will provide support for the food safety outreach program.

Obtain state resources to support the outreach program.

CE personnel will work with the CE Director and other CE personnel in the College to gain recognition and support for CE programs within the University and the state. The visibility of CE programming will be increased through the building of a strong, vocal constituency that will advocate on our behalf to the residents of Rhode Island's cities and towns as well as members of the state legislature.

Restructure the EFNEP program.

As the paraprofessionals currently involved in delivery of the EFNEP program retire, BS level program assistants will be hired to replace them. Hiring of more qualified personnel will allow the program to be delivered in a more efficient and cost-effective

way. While paraprofessionals work with individual families, the Program Assistants will work with the staff of community agencies that will then deliver the program.

TIMELINE

Year 1

Utilize the Champlin Foundations grant to develop the foods and nutrition assessment laboratories.

Continue work with the Food, Nutrition and Hunger Center committee.

Provide appropriate lab facilities for K. Melanson.

Develop nutrition option under the Nutrition and Dietetics major.

Establish mechanism for senior students to serve as teaching assistants and initiate the program.

Improve recruitment materials for undergraduate and graduate students.

Submit new proposal for weight management research (with exercise science and psychology).

Request a new faculty position in nutrition and exercise.

Year 2-3

Develop and market a food science minor for students outside of NFS.

Initiate the outcome assessment program for undergraduates.

Offer an undergraduate course in Sports Nutrition

Revise the General Nutrition course as necessary to meet new guidelines for general education.

Request a new faculty position in food safety.

Request a new faculty position in clinical nutrition to replace M. Caldwell.

Obtain outside funding for outreach.

Restructure the EFNEP program and seek increased funding for the program.

Year 3-5

Develop a new general course in contemporary issues in food and nutrition.

Request a nutrition specialist to support the nutrition outreach programs and to supervise undergraduate students in community based experiences.

Require all undergraduates to obtain a minimum of three credits in field experience or special projects.

Offer a graduate course in clinical nutrition; market the MS program to dietetic professionals in the state.

Offer a graduate course in food safety.

Year 5-10

Obtain accreditation for the undergraduate program in Dietetics and the Dietetic Internship.

Request a new faculty position in nutrition science (biochemical assessment).

Maintain adequate staffing for the CE programs with replacements for retirements.

GOAL 1: NATIONALLY RECOGNIZED RESEARCH PROGRAMS IN:

Nutrition and Health

Food Safety and Quality

Marine Resource Utilization

CURRENT STRENGTHS:

Nationally recognized research programs in

- Behavior change to decrease risk of cancer and other chronic diseases.
- Food behavior and nutrition risk in aging populations.
- Food safety and quality.
- Marine resource utilization.

CURRENT WEAKNESSES:

- Lack of laboratory-based nutrition research
- Limited faculty/staff in food safety and marine food science

PLAN:

- Expand current research in nutrition and health to address physiological and biochemical factors related to chronic disease prevention and healthy aging
 - Expand research in weight management.
 - Develop expertise in nutrition and exercise.
 - Develop capacity to study biochemical markers of dietary status, disease risk and aging.
- Expand research in food safety research into detection of bioactive molecules, pathogens and toxins.
- Expand research on marine resource utilization in marine nutraceuticals and biopolymers.

Goal 2: A STRONG UNDERGRADUATE PROGRAM RECOGNIZED FOR EXCELLENCE.

STRENGTHS:

- Accredited Dietetics program has excellent reputation in the Northeast.
- General nutrition course is a General Education course; enrollment exceeds 1200 students/year.
- Champlin Foundations grant to equip new teaching laboratories for food study and nutrition assessment.

WEAKNESSES:

- Nutrition option under the major has not been well defined.
- Inability to offer training in nutrition and exercise.
- Limited ability to supervise experiential learning.

PLAN:

- Maintain accreditation of the Dietetics program.
- Increase enrollments in the major:
 - Develop the nutrition option under the Nutrition and Dietetics major.
 - Implement a recruitment plan.
- Incorporate more experiential learning into the curriculum.
- Train undergraduate students to assist in general education and laboratory classes.
- Implement a comprehensive outcome assessment for all undergraduate students.
- Maintain General Education status for the General Nutrition course
- Develop additional general education course covering current issues in food and nutrition.

Goal 3: STRONG, FOCUSED GRADUATE PROGRAMS

CURRENT STRENGTHS:

- Research in behavior change and nutrition education interventions in aging.
- Accredited Dietetic Internship.

WEAKNESSES:

- Limited laboratory-based nutrition research
- Limited course offerings
- Limited enrollment in the food science area

PLAN:

- Strengthen the graduate program in laboratory based nutrition science and clinical nutrition.
- Develop and market the MS program to dietetic professionals
- Increase enrollments in the food science portion of the program.
- Offer new graduate courses in nutrition and exercise, food safety, nutrition and metabolism, and clinical nutrition.
- Increase the percentage of graduate students who are in the PhD program.

Goal 4: Nationally Recognized Nutrition And Food Safety Outreach Programs.

STRENGTHS:

- Outreach programs are externally funded and nationally recognized
- Strong collaboration with a variety of partners

WEAKNESSES:

- Heavy reliance on external funding
- Decreased federal funding for the EFNEP program
- Limited ability to pursue new programming opportunities

PLAN:

- Expand ability to develop and implement new programs
- Obtain state resources to support the outreach programs.
- Restructure EFNEP.

Goal 5: FACULTY AND STAFF HOUSED TOGETHER WITH ADEQUATE LABORATORIES, OFFICES AND OTHER SPACE.

PLAN:

- Obtain and renovate laboratory and office facilities for all faculty and staff currently housed in Ranger Hall.
- Obtain and renovate space in Ranger Hall for undergraduate teaching laboratories.
- Move all NFS faculty, staff and graduate students into Ranger Hall.

RESOURCES

To maintain the quality and scope of our programs, it is necessary to maintain our current level of staffing.

- Replace faculty and staff who retire.

Meeting our long-term goals will require additions to the faculty and staff:

- New faculty member with expertise in nutrition and exercise
- New faculty member with expertise in food safety
- New faculty member with expertise in nutrition science
- Nutrition specialist to support the nutrition outreach programs and to supervise undergraduate students in community based experiential learning opportunities.

CURRENT STATUS:

Faculty and Staff:

Faculty: 7
Instructor: 1
CE Specialists: 3

Undergraduate Major: Nutrition and Dietetics

Options: Dietetics (accredited program)
Nutrition

Enrollments:

Undergraduates: 90
Graduate Students:
MS 22
PhD 6

Space:

Ranger Hall - inadequate office and lab space
CE Center
FSN Center, West Kingston