# University Senate
## TRANSMITTAL FORM

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| **Senate Document #:** | 09-10-45 |
| **PCC ID #:** | 09062 |
| **Title:** | Merge the graduate programs in Food Science and Nutrition into a single program titled "Nutrition and Food Science" |
| **Presenter:** | Alex Chen, Chair, Senate Programs, Curricula, and Courses Committee |
| **Date of SEC Review:** | April 20, 2010 |
| **Date of Senate Review:** | April 29, 2010 |
| **Voting (highlight one):** | 1. On resolutions or recommendations one by one, or<br>2. In a single vote<br>3. To endorse entire report |
| | |
| **Statement of Issue:** | The College of Agriculture and Natural Resources and the Department of Nutrition and Food Science wish to merge the graduate programs in Food Science and Nutrition into a single program titled "Nutrition and Food Science." Both Food Science and Nutrition will remain specializations within the "Nutrition and Food Science" M.S. and Ph.D. degrees. The purpose of merging these two related programs within the same department is to reduce the overall administrative burden on faculty members of the Nutrition and Food Science department, who were unanimous in their support of this proposal. No changes in admissions or course/program requirements are planned. The accreditation of the individual specializations will not be affected because the curriculum for each specialization will remain the same; it is only the degree that is changing its name. Currently enrolled students may finish the degree as it is currently named.<br><br>The Senate PCC committee approved the proposal at its meeting on February 19, 2010. The Graduate PCC approved the proposal at its meeting on February 26, 2010, and the Graduate Council approved the proposal on April 9, 2010. The Academic Planning Advisory Committee approved the proposal on February 8, 2010. |

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| **Relevant Policy # & URL:** | N/A |
| **Recommendation:** | The Senate Committee on Programs, Curricula, and Courses recommends that the Senate approve this program merger. |
| **Committee Work:** | The Committee considered the proposal at its meeting on February 19, 2010. Leon Slaughter, the College's Associate Dean, and Lucy Yu, Acting Chair of Nutrition and Food Science, were present to answer questions. After discussion, the Committee voted unanimously to recommend the proposal. |
| **Alternatives:** | The Senate could decline to approve the proposed merger of programs. |
| **Risks:** | If the Senate does not approve the proposed program merger, the University will lose an opportunity to create efficiencies within the Nutrition and Food Science department. |
| **Financial Implications:** | There are no significant financial implications with this proposal, although there will be some savings from reduced faculty administrative responsibilities. |
| **Further Approvals Required:** *(*Important for PCC Items)* | If the Senate approves these proposals, they would still require further approval by the President and the Chancellor (with notification to the Maryland Higher Education Commission.) |

# THE UNIVERSITY OF MARYLAND, COLLEGE PARK
# PROGRAM/CURRICULUM/UNIT PROPOSAL

☐ ORIGINAL

- Please email the rest of the proposal as an MSWord attachment to pcc-submissions@umd.edu.
- Please submit the signed form to the Office of the Associate Provost for Academic Planning and Programs, 1119 Main Administration Building, Campus.

PCC LOG NO. 09062

**College/School:** **Agriculture and Natural Resources**

**Department/Program:** **Nutrition and Food Science**

**Type of Action (choose one):**

- ☐ Curriculum change (including informal specializations)
- ■ *Renaming of program or formal Area of Concentration*
- ☐ *Addition/deletion of formal Area of Concentration*
- ☐ *Suspend/delete program*
- ☐ *New academic degree/award program*
- ☐ New Professional Studies award iteration
- ☐ New Minor
- ☐ Other

*Italics indicate that the proposed program action must be presented to the full University Senate for consideration.*

**Summary of Proposed Action:**

Merge two existing graduate programs in Nutrition (NUTR) and in Food Science (FDSC) into a single program titled "Nutrition and Food Science" (NFSC) having the M.S. and Ph.D. degrees with two Options: 1) Food Science, and 2) Nutrition. FDSC and NUTR each offers the M.S. and Ph.D. degrees through the Department of Nutrition and Food Science. All courses in FDSC and NUTR already have the same departmental prefix of NFSC. This is essentially a merger of two related programs within the same department to reduce the overall administrative burden. No changes in admissions or course/program requirements are planned with the exception of a few housekeeping details mentioned in the application below.

APPROVAL SIGNATURES - *Please print name, sign, and date. Use additional lines for multi-unit programs.*

1. Department Committee Chair Wen-Hsing Cheng 12-8-09
2. Department Chair Mickey Parish 12-8-09
3. College/School PCC Chair 1/13/10
4. Dean 1-4-10
5. Dean of the Graduate School (if required) 4/9/10
6. Chair, Senate PCC 2-19-2010
7. University Senate Chair (if required)
8. Vice President for Academic Affairs & Provost

**"Nutrition and Food Science" Graduate Program**

This application is to merge the two related graduate programs of Food Science (FDSC) and Nutrition (NUTR) to create the single graduate program of "Nutrition and Food Science" (NFSC) having two options in Food Science and Nutrition. The M.S. and Ph.D. degrees are currently offered by each program and will be offered in the new combined program. Note that UMCP is one of 15 land-grant campuses that merges human nutrition and food science within a single department. All other universities have separate departments for the two disciplines, or merge them with other related disciplines.

A second application to likewise merge our three B.S. degree programs into a single "Nutrition and Food Science" B.S. has been filed separately.

**1. ADMISSIONS: The admissions policy below reflects the current policy for NUTR and FDSC, and will be the unified policy for the NFSC degree.**

A. All applicants for admission must fulfill requirements of the Graduate School, including, but not limited to:

1. possession of a 4-year baccalaureate degree from a regionally-accredited U.S. institution, or an equivalent degree earned at a non-U.S. institution;
2. a 3.0 Grade Point Average (on a 4.0 scale) in all prior Undergraduate and Graduate coursework;
3. international students must meet IES language requirements for TOEFL or IELTS to be admitted on an unconditional basis;
4. submission of official academic transcripts;
5. submission of three letters of recommendation;
6. submission of a statement of career objectives and professional experience;
7. For the Ph.D. degree: An M.S. degree in Food Science, Nutrition or related field is highly desirable. Direct entry into the Ph.D. program without the M.S. is discouraged but may be considered for highly credentialed applicants. Such admissions will be required to take additional background courses as identified by the major advisor and advisory committee.

B. All applicants for admission must take the Aptitude Test of the Graduate Record Examination (GRE-General Test). Minimum GRE scores of 500 on the verbal and 500 on the quantitative sections, and 3.5 on the analytical section of the GRE, are required for unconditional admission.

C. The Program Admissions Committee (PAC) reviews all applications and makes recommendations based upon the applicant's total record. Faculty comments about applicants will be sought and used by the PAC in its decision on admissions.

**2. Ph.D. REQUIREMENTS: Information below reflects current NUTR and FDSC requirements.**

I. General Course Requirement:

A minimum GPA of 3.0 is required to maintain good academic progress for graduation. Course requirements include:

1. At least 12 hours of doctoral dissertation research credits (NFSC 899).
   a. At least one credit of NFSC 899 in the semester intended to graduate.
2. At least 9 credit hours of course work exclusive of NFSC 898/899 with the following requirements:

a. Advanced courses taken must be in agreement with the major advisor
b. At least 6 credits must be designated as 600 level
c. 3 credits of NFSC 688 seminar with one seminar focusing on proposed research area and one seminar on dissertation results
d. If graduate-level statistics have not previously been taken, students are required to complete 3 credits of Biometrics or Statistics at the 600 level
e. Additional requirements for Food Science option only:
    i. If not taken as an undergraduate, students are required to complete coursework in three of the following five courses:
        1. NFSC 421 Food chemistry
        2. NFSC 450 Food and nutrient analysis
        3. NFSC 430 Food microbiology
        4. NFSC 412 Food processing technology
        5. NFSC 414 Mechanics of food processing
f. Additional requirements for Nutrition option only:
    i. Students without basic background courses will be required to take appropriate courses as decided by the major advisor and advisory committee

II. Advancement to Candidacy:

A student must be admitted to candidacy for the doctorate within five years after admission to the doctoral program and at least six months before the date on which the degree will be confirmed.

1. For Food Science Option only:

Candidacy Qualifying Exam requires:

i. Submission of a written dissertation proposal of the student's dissertation research to the committee at least **3 weeks** before taking the oral candidacy exam. The format for the written proposal should follow that of a proposal for competitive external funding such as USDA, NIH or NSF.

ii. The candidacy qualifying exam consists of two consecutive parts:

(a) An oral presentation of the dissertation proposal at the presence of the entire Faculty Advisory Committee.

(b) A comprehensive exam that includes questions on the student's core-food science related knowledge.

iii. A second candidacy qualifying exam requires the approval of the Director of the Graduate Program in Food Science and the Dean of the Graduate School. If the student fails this second defense, or the second defense is not permitted, the student's admission to the

graduate program is terminated.

2. For Nutrition Option only:

Admission to candidacy is a two-step process:

1. The student must submit to his/her dissertation committee a written proposal of his/her research 2-3 weeks before taking the written exam. The format for the written proposal should follow that of a proposal for competitive external funding such as USDA, NIH

or NSF.

A written examination based on the student's dissertation proposal, but also covering **core nutrition-related knowledge** will be completed by the student over a two day period. These written questions will be submitted by the dissertation committee. The student's advisor will organize and administer this written exam. The exam questions will be graded by the individual committee members that submitted the questions. This exam will be graded pass/fail. It may be repeated only once.

Once a student has successfully passed the written exam, the student will orally defend his/her dissertation proposal to his/her committee. This oral presentation of the research proposal should take place 2-3 weeks after the written exam. The oral defense of the research proposal may be repeated only once. The Program Director will be notified in writing by the student's advisor about the successful defense of the proposal.

2. Defense examination:
Each doctoral candidate is required to orally defend his/her doctoral dissertation as a requirement in partial fulfillment of the doctoral degree. The written format of the dissertation is to conform to The Thesis & Dissertation Manual of UMCP. This manual contains the instructions for preparation of theses and dissertations and is available from the Media Express-Campus Reprographics, Rockford Armory, for a minimal charge.

Two or more negative votes of the members of the doctoral candidacy examining committee constitutes a failure of the candidate to meet the dissertation requirement. In cases of failure, it is required that the examining committee specify in detail and in writing to the Program Director, the Dean of Graduate Studies and Research, and the student, the exact nature of the deficiencies in the dissertation and/or the oral performance that led to failure. A second defense is permitted, which results in termination of the student's admitted status if it is failed.

## 3. M.S. COURSE REQUIREMENTS: Information below reflects current NUTR and FDSC requirements.

A minimum of 30 semester hours of graduate study are required to graduate. A minimum GPA of 3.0 is required to maintain good academic progress for graduation. The 30 credits must include:

1. At least 6 hours of thesis research credit (NFSC 799)
2. At least 24 credit hours of course work exclusive of NFSC 799 with the following requirements:
    a. At least 12 credits must be designated as 600 level
    b. 2 credits of NFSC 688 seminar with one seminar focusing on thesis results
    c. 3 credits of BIOM 601, graduate level biometrics or equivalent
    d. Additional requirements for Food Science option only:
        i. 7 credits of advanced level courses in food science
        ii. If not taken as an undergraduate, students are required to complete coursework in:
            1. Food chemistry
            2. Food microbiology
            3. Food processing

4. Biochemistry

e. Additional requirements for Nutrition option only:
   i. 3 credits NFSC 660 Research Methods
   ii. 6 credits of advanced level courses in nutrition
   iii. If not taken as an undergraduate, the following courses may be required as determined by each nutrition student's advisory committee:
      1. One semester BCHM 461 or equivalent
      2. One semester BCHM 462 or equivalent
      3. One semester BSCI 440 or equivalent
      4. One semester NFSC 440/NFSC 678R

## 4. RESOURCES:

No new resources are needed. The proposed merge would offer savings in administrative time and costs such as one admission committee will replace the current two, and one LOA will replace the current two LOAs.

## 5. COURSES: Separate PCC documents will be filed with this application for 5.a.-c.

### 5.a. Courses for Deletion

NFSC 403 Medicinal and Poisonous Plants (2 credits)
Faculty member retired in 2006.
NFSC 689 Seminar in Food Science (1-3 credits)
Course will be merged into NFSC 688 as described in 5.b. below.

### 5.b. Course to be Renamed

NFSC 688
From: Seminar in Nutrition (1-3 credits)
To: Seminar in Nutrition and Food Science (1-3 credits)

### 5.c. Remaining Approved Program Courses: Following are currently approved graduate courses in the Department of Nutrition and Food Science for FDSC and NUTR and will remain in the new NFSC merged graduate degree.

NFSC 410 Nutritional Genomics (3 credits)
NFSC 412 Food Processing Technology (4 credits)
NFSC 414 Mechanics of Food Processing (4 credits)
NFSC 421 Food Chemistry (3 credits)
NFSC 422 Food Product Research and Development (3 credits)
NFSC 423 Food Chemistry Laboratory (3 credits)
NFSC 425 International Nutrition (3 credits)
NFSC 430 Food Microbiology (3 credits)
NFSC 431 Food Quality Control (4 credits)
NFSC 434 Food Microbiology Laboratory (3 credits)
NFSC 440 Advanced Human Nutrition (4 credits)
NFSC 450 Food and Nutrient Analysis (3 credits)
NFSC 460 Medical Nutrition Therapy (4 credits)
NFSC 468 Practicum in Nutrition (1-6 credits)
NFSC 470 Community Nutrition (3 credits)
NFSC 490 Special Problems in Nutrition (2-3 credits)
NFSC 491 Issues and Problems in Dietetics (3 credits)

NFSC 498 Selected Topics (1-3 credits)
NFSC 610 Molecular Gerontology (3 credits)
NFSC 611 Molecular Nutrition: Genomic, Metabolic, and Health Aspects; (2 credits)
NFSC 615 Maternal and Infant Nutrition (3 credits)
NFSC 630 Nutritional Aspects of Energy Balance (3 credits)
NFSC 631 Advanced Food Microbiology (3 credits)
NFSC 650 Nutrition and Public Health (2 credits)
NFSC 655 Nutrition, Food and Public Policy (3 credits)
NFSC 660 Research Methods (3 credits)
NFSC 675 Nutritional Epidemiology (3 credits)
NFSC 678 Selected Topics in Nutrition (1-6 credits)
NFSC 679 Selected Topics in Food Science (1-6 credits)
NFSC 680 Human Nutritional Status (3 credits)
NFSC 690 Nutrition and Aging (3 credits)
NFSC 698 Colloquium in Food Science (1 credits)
NFSC 699 Problems in Nutrition and Food Science (1-4 credits)
NFSC 799 Master's Thesis Research (1-6 credits)
NFSC 898 Pre-Candidacy Research (1-8 credits)
NFSC 899 Doctoral Dissertation Research (1-8 credits)

**6. LEARNING OUTCOMES ASSESSMENTS: The current LOA programs for FDSC and NUTR will be continued for the two areas of concentration. See appendix for 2009-10 LOA plans with program title changes to reflect the merger.**

# APPENDIX: Nutrition and Food Science Proposal Graduate Programs Merger

## Learning Outcome Assessment Plans

**M.S. in Nutrition and Food Science (Nutrition Option)**
**M.S. in Nutrition and Food Science (Food Science Option)**

**Ph.D. in Nutrition and Food Science (Nutrition Option)**
**Ph.D. in Nutrition and Food Science (Food Science Option)**

**ASSESSMENT METHODS, CRITERIA & RESULTS** _M.S. degree in Nutrition and Food Science (Nutrition Option)
(Program of Study / Major / Degree Level, etc.)

For Time Period: _____Fall 2009 and Spring 2010_____

Program Contact: __Liangli (Lucy) Yu_____ Phone: _ext. 5-4503__ E-mail: __lyu5@umd.edu_____

Date submitted to Academic Unit Head: ____September 28, 2009_____

| **Student Learning Outcomes Assessments** | **Assessment Methods & Criteria** | **Assessment Results (reported every two years)** | **Impact of Results** |
|---|---|---|---|
| 1. Graduates will demonstrate knowledge proficiency and aptitude in nutritional science | **Measure:** Satisfactory completion of graduate or equivalent level courses according to nutrition curriculum and academic area of interest.<br>**Criteria:** 80% completion of degree within two years and maintain a B average. | | |
| 2. Students will develop critical skills in analyzing, interpreting and extrapolating data from their own research and from the scientific literature. | **Measure:** Present thesis defense to committee<br>**Criteria:** 90% of the students will be able of answer questions and discuss implications of their research as determined by the thesis committee and Chair and based on a generic rubric developed within the graduate program in Nutritional Sciences. | | |
| 3. Develop skills in oral and written | **Measure:** Present thesis proposal and thesis | | |

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| communications | defense to peers and faculty at 2 different seminars<br><br>**Criteria:** 80% of the students will be able of answer questions and discuss the implications of their research as determined by the evaluations (both instructor and peer) based on the rubric designed by the seminar instructor. | | |

**ASSESSMENT METHODS, CRITERIA & RESULTS** _M.S. in Nutrition & Food Science (Food Science Option)
(Program of Study / Major / Degree Level, etc.)

For Time Period: _____Fall 2009 and Spring 2010_____

Program Contact: Y. Martin Lo Phone: ext. 5-4509 E-mail: ymlo@umd.edu

Date submitted to Academic Unit Head: ____September 28, 2009_____

| **Student Learning Outcomes Assessments** | **Assessment Methods & Criteria** | **Assessment Results (reported every two years)** | **Impact of Results** |
|---|---|---|---|
| 1. Students will develop aptitude in food science core competency areas including food chemistry, food microbiology, and food processing technology. | **Measure:** Success in completing core courses required for the degree program.<br>**Criteria:** 90% of the students will be able to score B or higher on the core courses in food science, including food chemistry, food microbiology, and food processing technology. | | |
| 2. Students will develop critical skills in analyzing, interpreting, and extrapolating data from their own research and from the scientific literature. | **Measure:** Present and defend M.S. thesis<br>**Criteria:** 90% of the students will be able of answer questions and discuss implications of their research as determined by the thesis committee and Chair and based on a generic rubric developed within the graduate program in Food Science. | | |

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| 3. Students will develop skills in oral and written communications. | **Measure:** Present thesis proposal and thesis defense to peers and faculty at 2 different seminars<br>**Criteria:** 80% of the students will be able of answer questions and discuss the implications of their research as determined by the evaluations (both instructor and peer) based on the rubric designed by the seminar instructor. | | |
| 4. Students will demonstrate ability to conduct independent and scholarly research and to present and publish research findings. | **Measure:** Number of publications and presentations of M.S. students at graduation.<br>**Criteria:** By the end of their program 70% of M.S. graduates will publish at least one refereed journal article and make at least one presentation at a national/international conference. | | |

**ASSESSMENT METHODS, CRITERIA & RESULTS** _ Ph.D. degree in Nutrition and Food Science (Nutrition Option)
(Program of Study / Major / Degree Level, etc.)

For Time Period: _____Fall 2009 and Spring 2010_____

Program Contact: _Liangli (Lucy) Yu_____ Phone: _ext. 5-0761_ E-mail: _lyu5@umd.edu_____

Date submitted to Academic Unit Head: ____September 28, 2009_____

| **Student Learning Outcomes Assessments** | **Assessment Methods & Criteria** | **Assessment Results (reported every two years)** | **Impact of Results** |
|---|---|---|---|
| 1. Develop skills in oral and written communications | **Measure:** Present dissertation proposal and dissertation defense to peers and faculty at 2 different seminars<br>**Criteria:** 80% of the students will be able of answer questions and discuss the implications of their research as determined by the seminar instructor and peer evaluation. | | |
| 2. Students will develop breadth of knowledge in the basics of nutritional science and depth of knowledge in the student's specific area of research focus | **Measure:** Satisfactory completion of written and oral preliminary examinations prepared by the students' Ph.D. committee.<br>**Criteria:** 80% success rate in passing comprehensive exam and advancing to candidacy at first try based on a rubric developed by | | |

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| | dissertation committee and Chair. | | |
| 3. Students will develop critical skills in analyzing, interpreting and extrapolating data from their own research and from the scientific literature. | **Measure:** Present dissertation defense to committee members<br>**Criteria:** 90% of the students will be able to answer questions and discuss implications of their research as determined by the dissertation committee and Chair using a generic rubric developed within the Nutrition Graduate Program. | | |

**ASSESSMENT METHODS, CRITERIA & RESULTS** Ph.D. in Nutrition & Food Science (Food Science Option)
(Program of Study / Major / Degree Level, etc.)

For Time Period: _____Fall 2009 and Spring 2010_____

Program Contact: Y. Martin Lo Phone: ext. 5-4509 E-mail: ymlo@umd.edu

Date submitted to Academic Unit Head: ____September 28, 2009_____

| **Student Learning Outcomes Assessments** | **Assessment Methods & Criteria** | **Assessment Results (reported every two years)** | **Impact of Results** |
|---|---|---|---|
| 1. Students will develop aptitude in food science core competency areas including food chemistry, food microbiology, and food processing technology. | **Measure:** Success in completing core courses required for the degree program.<br>**Criteria:** 90% of the students will be able to score B or higher on the core courses in food science, including food chemistry, food microbiology, and food processing technology. | | |
| 2. Students will develop skills in oral and written communications. | **Measure:** Present dissertation proposal and dissertation defense to peers and faculty at 2 different seminars.<br>**Criteria:** 80% of the students will be able of answer questions and discuss the implications of their research as determined by the evaluations (both instructor and peer) based on the rubric | | |

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| | designed by the seminar instructor. | | |
| 3. Students will develop breadth of knowledge in the basics of food science and depth of knowledge in the student's specific area of research focus. | **Measure:** Satisfactory completion of written and oral preliminary examinations prepared by the students' Ph.D. committee.<br>**Criteria:** 80% success rate in passing comprehensive exam and advancing to candidacy at first try based on a rubric developed by dissertation committee and Chair. | | |
| 4. Students will demonstrate ability to conduct independent and scholarly research and to present and publish research findings. | **Measure:** Number of publications and presentations of Ph.D. students at graduation.<br>**Criteria:** By the end of their program 70% of Ph.D. graduates will publish at least two Science Citation Indexed refereed journal articles and make at least two presentations at a national/international conference. | | |