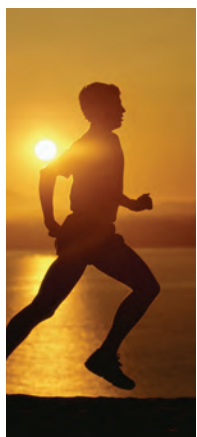
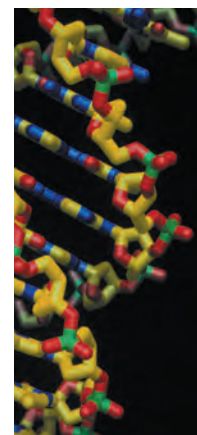


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H A N D B O O K

Department of Nutrition



School of Public Health

School of Medicine

*University of North Carolina
at Chapel Hill*



BSPH-MS Dual Degree Program

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Handbook for the BSPH/MS Dual Degree Program

I. Program Overview

The Department of Nutrition offers a BSPH/MS dual degree for those students who wish to increase their knowledge in nutrition and acquire additional skills in nutrition-based research. This dual degree will be useful for students interested in a research career in industry, program officers for non-governmental and governmental organizations, project or laboratory management in academic or non-academic settings, international work in nutrition-related programs, and for those considering pursuit of a doctoral degree or eventually attending medical or another professional school. BSPH/MS students will perform advanced research in nutrition and take graduate nutrition and other courses that will provide the information and experience needed to help them choose their career path. Additionally, for those students who are uncertain about whether they wish to enter the Department's Doctoral program, the BSPH/MS program offers an excellent opportunity to determine whether a more advanced degree would be appropriate. The BSPH/MS degree is not specific to any of the Department Divisions; rather, it builds on the work (both classroom-based and research) begun in the BSPH program. In summary, the BSPH/MS program in Nutrition allows students the opportunity to explore nutritional research at an advanced level. The program can be completed in one calendar year (summer, fall, spring) following completion of the BSPH in Nutrition program (See 1C-Time Required).

A. Degree-Specific Competencies

Competencies define what students should know and be able to do upon completion of their degree program. Competencies guide our curriculum planning process and serve as a measure against which student achievement is assessed. Listed below are the degree-specific competencies for BSPH and MS in Nutrition:

BSPH Competencies

1. Demonstrate knowledge of nutritional biochemistry, the metabolism and function of nutrients and the nutritional components of diseases through advanced courses in nutrition.
2. Demonstrate competence in the basic public health core areas of biostatistics, environmental sciences, health policy management, health behavior and health education and epidemiology and the roles these disciplines play in the interdisciplinary field of nutrition and public health.¹
3. Describe the nutritional needs of individuals across the life cycle; the psychological, behavioral and social factors that affect food consumption and nutritional status and the programs and services available to help individuals meet their nutritional needs.
4. Apply the scientific method in the areas of nutritional biochemistry, nutritional epidemiology and intervention and policy.

¹ Students in the BSPH program in Nutrition also develop core public health competencies as described in the Gillings Schoolwide Student Handbook

MS Competencies

1. Demonstrate knowledge of nutritional biochemistry and biological mechanisms underlying the relationships between nutrients and health.
2. Demonstrate competence in fundamentals of public health, including biostatistics and epidemiology, and how this content is used in research.
3. Demonstrate mastery of concepts in nutritional biochemistry.
4. Demonstrate specialized knowledge in selected research competency areas.
5. Present research results effectively.
6. Demonstrate mastery of research methodology, contribute new knowledge and successfully accomplish the goals and objectives of the master's research.

B. Admissions Requirements

Students entering the dual degree program must satisfy the following conditions:

- a) Be in the Department of Nutrition BSPH Honors Program.
- b) At the time of undergraduate graduation, the student must have completed all prerequisite coursework for admission into the MS program.
- c) At the time of undergraduate graduation, the student may have completed graduate coursework in excess of the minimum undergraduate credit hour requirements in courses that are not counted toward the BSPH degree but are acceptable to the Department of Nutrition for the MS program.
- d) The student should complete at least two years of research experience in the laboratory or research group of a Nutrition faculty member while an undergraduate that provides the initial portion of the MS degree research.
- e) The student must obtain the endorsement of his/her faculty Honors advisor and Co-Advisor (if applicable). This endorsement includes a willingness to advise the student in completing his/her research for MS and a statement that the student is expected to be able to complete MS degree requirements. This endorsement should be contained in a letter of recommendation submitted as part of the dual degree program application.
- f) Students applying for this program must submit a completed BSPH/MS dual degree program application to the Department's Student Services Manager that includes a personal statement, resume, GRE, MCAT, or DAT exam scores, and three letter of recommendations (with one being from your primary advisor endorsing your progression to the MS degree), and meet all standard Nutrition Department requirements for graduate admission. Official GRE scores should be sent electronically through the testing center using school code 5816 (no department code). If you are submitting MCAT or DAT scores, please contact the Student Services Manager for specific details for requesting a GRE waiver. Your personal statement should be no more than 1-page (Ariel font 11, single-spaced) and address the following questions:
 1. What are your long-term goals and how will the MS program help move you towards achieving them?
 2. What specific research question will you address during your MS training? In other words, what is your hypothesis?
 3. What is your motivation for addressing the research questions? Include a brief description of relevant findings from your BSPH Honors Research, as well as, broader considerations of public health/clinical significance.
 4. How will you answer your research question? Briefly, and in relatively broad terms, describe your research approach.

- g) The student must be admitted by both the Department of Nutrition and the Graduate School.

We recommend those interested submit their completed application before December 1st of your senior year in the BSPH program, although you have until February 1st to submit your application. The BSPH/MS dual degree committee will evaluate applications during the month of February with the outcome being one of the following:

- a) Admission to the dual degree program
- b) Postponement of the decision until the end of the Spring semester (data inadequate)
- c) Declination of admission to the dual degree program

Applications received before **December 13th** will be eligible for consideration for Graduate School fellowships and assistantships (http://gradschool.unc.edu/fellowships_and_funding/index.html).

The BSPH/MS dual degree committee administers the program.

Application Process: An application form is available from the Student Services Manager (SSM) and is also attached to the end to this handbook. This application is to be completed and all materials provided to the Nutrition Department Student Services Manager. The application fee is waived for BSPH/MS students. If approved for admission, the Department will submit the application to the Graduate School.

C. Time Required

The BSPH degree requires 120-credit hours. The MS degree requires 30-credit hours. Up to 30% of the MS 30-credit hours or 9-credit hours taken while an undergraduate, but not part of the BSPH 120-credit hour requirement can count towards the MS degree. These courses must be at the 600 or 700 level, and require approval from the BSPH/MS dual degree committee. The total time needed to complete all requirements for the BSPH/MS dual degree program will ordinarily be five years, including one summer session (typically the summer after BSPH graduation). Students admitted to the dual degree program are not required to complete degree requirements within 1 year. Admission into the dual degree program is not a guarantee that the student will complete degree requirements. This program requires an agreement of goodwill between the advisor and the student that based on the student's academic record and demonstrated research ability, a continuing level of dedication will result in completion of degree requirements within a year. Degree requirements for dual degree students are the same as those for students admitted to the regular MS program. None of the credits are double-counted towards requirements for both the BSPH and MS. However, students can (and are highly encouraged) to have completed up to 30% of the graduate degree (MS) credit hour requirements at the time of BSPH graduation. Research completed while an undergraduate for credit cannot be counted towards the MS degree.

D. In-State Residence Status

Students planning to stay in North Carolina for an extended period should apply for in-state resident status for tuition purposes; it is best to begin this process immediately. Students new to the state are highly encouraged to obtain a North Carolina driver's license and register to vote. After one year of residency, application is made to the Graduate School. Appeal procedures exist for applications that are denied. The Graduate School also maintains regularly scheduled workshops on the application process (<http://gradschool.unc.edu/residency/index.html>).

II. FINANCIAL SUPPORT

Financial assistance is rarely available through faculty members in the Nutrition Department. Ordinarily, funds for training at the Masters level are not available from the University.

A. The Nutrition Department

The department does not routinely offer support in the form of traineeships, or research or teaching assistantships for Master students. However, nutrition faculty members are involved in many research activities, and opportunities for employment on faculty research grants are sometimes available. Students are encouraged to contact faculty members regarding possible positions on research projects. Each student holding an appointment carrying either service or non-service financial support must be registered in order to hold that position.

B. Private and Public Sector

Information is available from the department's Student Services Manager (SSM) regarding sources of agency funding. In addition, the SSM can tell you how to access a list of external funding sources for which students may apply.

C. The University

Application for financial assistance may also be made to the University Scholarships and Student Aid Office (<http://studentaid.unc.edu/>).

The Resource Library at the Research Services Office offers a free computerized search service to UNC graduate students (<http://research.unc.edu/grantsource/>).

The database includes private and public sources of research funding that can be searched by the student's area of research interest or by discipline of investigator, e.g., funding for nurses. Some agencies provide training support only, some dissertation support only and some both training and dissertation support. Some funding agencies provide dissertation support by means of competitive grant applications. Students should be aware that the deadline for applying for many of these grants might precede the funding date by as long as a year; thus many are appropriate only for doctoral dissertation work and not masters' level thesis work.

III. THE FACULTY ADVISOR

A. Assignment of Advisor

The undergraduate Honors research advisor will be the MS thesis advisor as well. The student must obtain the endorsement of their BSPH research advisor for admission to the BSPH/MS program. This endorsement signifies that the advisor is willing to supervise the student's MS research and provide guidance for completion and defense of the MS thesis. If the primary advisor is not a Nutrition faculty member, the endorsement of a Nutrition faculty member who served as the student's Honors BSPH co-advisor is also required. The undergraduate research project will form the basis of the MS thesis, and therefore, a close relationship with the research advisor is expected. The selection of the research

project as an undergraduate requires close consultation with the advisor to ensure that the Honors thesis project selected is appropriate for forming the MS thesis work. BSPH students interested in the BSPH/MS program should discuss their interest in the program with their research advisor during the fall semester of their Junior Year (first semester in the BSPH program). Student/faculty communication is viewed as a mutual responsibility. The research advisor will serve as the major source of guidance.

B. Changing the Advisor

A student may wish to change advisors. To change advisor, the student should confer with the current and the intended advisor. A change in research advisor must be very carefully considered, as it is likely to delay significantly the student's progress through the BSPH/MS dual degree program. Students may consult with the Chair of the BSPH/MS dual degree committee or the department Chair for assistance in making such a change. A change in advisor form can be obtained from the Student Services Manager.

IV. PROPOSED STRUCTURE

The student will improve his/her knowledge of nutritional science and methodology, learn research techniques in nutritional science, develop critical thinking skills, and perform original research. Students are welcomed and encouraged to take other courses offered in the Gillings School of Global Public Health, as well as, the wider-University.

A. Typical Program

Junior Year - BSPH/MS Student

FALL term: (*Hopefully, some of these classes were completed during your sophomore year.*)

CHEM 241 Modern Analytical Methods for Separation and Characterization (2)

CHEM 241L Laboratory in Separations and Analytical Characterization of Organic and Biological Compounds (1)

BIOL 202 Molecular Biology and Genetics (4)

EPID 600 Principles of Epidemiology (3)

NUTR 295 Undergraduate Research Experience in Nutrition (3)

Elective or

PHYS 114 General Elective (3) or PHYS 114 General Physics I (4)

Total Semester Credits: 16-17 credits

SPRING term:

CHEM 262 Introduction to Organic Chemistry II (3)
 CHEM 262L Laboratory in Organic Chemistry (1)
 BIOS 600 Principles of Statistical Inference (3)
 NUTR 295 Undergraduate Research Experience in Nutrition (3)
 NUTR 400 Introduction to Nutritional Biochemistry (3)
 Elective or
 PHYS 115 General Elective (3) or PHYS 115 General Physics II (4)
Total Semester Credits: 16-17 credits

Senior Year - BSPH/MS Student**FALL term:**

NUTR 295 Undergraduate Research Experience in Nutrition (3)
 NUTR 600 Human Metabolism: Macronutrients (3)
 NUTR 611 Nutrition Across the Lifecycle (3)
 HBEH 600 Social and Behavior Sciences in Public Health (*online*) (3)
 Elective General Elective (3)
Total Semester Credits: 15 credits

SPRING term:

NUTR 620 Human Metabolism: Micronutrients (3)
 NUTR 692H Honors Research in Nutrition (3)
 ENVR 600 Environmental Health (*online*) (3)
 HPM 600 Health Policy and Management (*online*) (3)
 Elective General Elective (3)
Total Semester Credits: 15 credits

GRADUATE MAY of SENIOR YEAR WITH 120-credits. Credits beyond 120 (up to 9) can be counted for MS program if they were not required for the BSPH degree.

ENTER GRADUATE PROGRAM, SUMMER OF GRADUATION**SUMMER SESSION I AND II following BSPH:**

NUTR 910 Nutrition Research (3-credits each session)
Total Semester Credits: 6 credits

YEAR IN MS PROGRAM:**FALL term:**

NUTR 885 Doctoral Seminar (1)
 *ELECTIVES (6-credits)
 NUTR 910 Nutrition Research (5)
 Total Semester Credits: 12 credits

SPRING term:

NUTR 885 Doctoral Seminar (1)
 *ELECTIVES (3-credits)
 NUTR 910 Nutrition Research (5)
 NUTR 993² Master Thesis (3)
Total Semester Credits: 12 credits

²The Capstone course for the degree

Requirement for 30-credits can be reduced by 9-credits depending on what courses were taken as an undergraduate. Credit hours cannot count for both the BSPH and MS degrees.

***ELECTIVES:** NUTR 728, NUTR 735, NUTR 745, NUTR 746, NUTR 803, NUTR 810, NUTR 811, NUTR 812, NUTR 813, NUTR 814, NUTR 818, NUTR 845, NUTR 861, NUTR 863, NUTR 864, NUTR 865/GNET 865, NUTR 867, NUTR 868, NUTR 875, HPM 715-002, HPM 880, BIOS 511, BIOS 545, BIOS 610, and EPID 700. In addition, courses offered by departments outside of the SPH such as Biology, Biostatistics, Cell and Developmental Biology, Biochemistry and Biophysics, Epidemiology, Genetics, Microbiology and Immunology, Psychology, Anthropology, Sociology, Journalism, etc. can be taken upon approval of the advisor. The SSM should be notified by email that a course has been approved by the advisor as an elective.

Fall semester: Take MS Comprehensive Examination (Section VI)

Graduate: End of spring semester with 5-years with one summer for dual BSPH/MS

B. Research

In addition to core research methods learned in basic biostatistics and epidemiology courses (as well as other nutrition courses), BSPH/MS students will perform independent research that expands the boundaries of knowledge in nutrition related areas. Independent research includes:

- Formulating an original research question.
- Understanding alternate research designs, and methods, including sample selection methods. These methods are unique to the analysis of nutritional factors as either exposures or outcomes, be they in laboratory, clinical or population-based small or large group settings.
- Carrying out a research project, including collecting data and/or using secondary data.
- Using statistical and analytic skills to test hypotheses and interpret results.
- Reporting the research findings in an original thesis and in papers for scholarly journals and/or at local or national conferences.

Students will develop competency in research methods through advanced courses, individual mentoring, and hands-on experience as they conduct their own research.

C. Timing of Activities to Meet Requirements

Students should plan to meet all of their course and research requirements in a total of five years and one summer (post-graduation with the BSPH degree) of BSPH/MS study. The comprehensive exam should be taken in Fall of the MS year and the Master's thesis completed by the date set by the Graduate School, so that the student will be eligible to graduate in Spring semester of the fifth year of attendance at UNC.

V. **SELECTION OF THE MASTERS COMMITTEE**

A. Composition

No later than the fall of the MS year, the student and his/her research advisor will choose an MS thesis committee. The MS thesis committee must have three members, one of whom (the faculty advisor) serves as the Chair. The Chair and at least one other member must hold a primary or joint appointment in the Department of Nutrition. At least two committee members must be full members of the

Graduate Faculty. Committee members who are not full members of the Graduate Faculty (for example, individuals from other institutions or firms who may hold adjunct appointments at UNC-CH) may be appointed with approval of the Graduate School. Members are selected because their fields of expertise are particularly relevant to the student's research.

B. Functions

BSPH/MS students are responsible for consulting with members of their committee at intervals throughout the year of their research. The first formal meeting of the student and his/her committee must be held no later than June 1st of their MS year with the purpose of discussing plans for the thesis. A second formal meeting takes the form of the comprehensive exam (See section VI). The agenda includes a formal presentation of the thesis proposal prepared by the student. The third formal meeting would be the oral defense of the Master thesis.

VI. COMPREHENSIVE EXAMINATION

BSPH/MS students will take an oral comprehensive exam that consists of defending the thesis proposal in the fall of their MS year. Following a 30-minute presentation concerning the thesis work, members of the MS thesis committee will ask questions concerning both the research proposal, as well as, information that have been gained from coursework and the students' own reading. The oral comprehensive exam may take up to 2-hours.

The MS thesis committee judges whether the student has passed the exam based on evaluation of the student's performance and the quality of the thesis proposal. Students who fail are entitled to retake the exam. If a student does not pass the exam on the second try, he or she must petition the Graduate School to take the exam for a third time. A supporting letter from the BSPH/MS dual degree committee must accompany the petition.

VII. MASTERS RESEARCH

A. Research

The research proposal includes a survey of the research literature, a statement of the testable hypotheses and research objective(s), and a detailed description of the research methodology and significance of the proposed research. Before any data are collected, research involving animal or human subjects must have the approval of the student's faculty adviser and the IACUC or the Institutional Review Board for the Protection of Human Subjects, as appropriate.

The MS research should indicate that the candidate has mastered the research methodology, has a grasp of the historical aspect of the research topic, and has contributed new knowledge. Through the conceptualization, planning and execution of research and the experience of writing the Master thesis, the MS student will learn skills that scientists need in order to succeed in almost all research settings.

The level of independence that a student has in research execution usually depends on the level of the experience of the student. Students should become more independent as they progress through the BSPH/MS program. The student and research advisor should discuss and agree upon the level of independence that is appropriate. Policies for defining authorship on papers that may result from

their work together should also be discussed. It is impossible, and probably not very profitable, to attempt to define the Master thesis too closely. Latitude remains to fit a variety of circumstances. Ultimately, the student's MS committee is best able to make decisions on the acceptability of an individual student's work.

B. Final Oral Defense

When the student has completed a final draft of the Master thesis, and the MS thesis committee has certified that all other degree requirements have been met, the final oral defense may be scheduled. The oral defense is held only after all members of the MS thesis committee have had an adequate opportunity to review the Master thesis. Committee members should be given a completed draft at least two weeks before the scheduled oral defense date.

At the final oral defense, the student will present a 40-45 minute seminar, in which he or she discusses the background, methods, results and significance of the research. After this presentation, which is open to all members of the community, the general audience may ask the student questions. The MS thesis committee will then meet in closed session with the student to ask further questions. This meeting will constitute the final oral defense. The committee may, at the time of the final oral, but not later, require revisions to the Master thesis.

C. Format of the MS Thesis

Two formats are acceptable for the Master thesis. The first is the traditional "book-style" document with separate chapters which typically take the form of (1) a literature review or background, (2) methods, (3) results, which may be in multiple chapters depending on the subject matter, (4) discussion, (5) conclusions, and (6) references.

The second approach is to write the Master thesis as an extended manuscript suitable for publication. The faculty strongly recommends this format. Thus, the body of the Master thesis would consist of a manuscript that has been supplemented by additional sections of introduction/background, synthesis, discussion of significance, and direction for future research. This style has the advantages of teaching students how to write for publication and of producing manuscripts ready for submission.

Other pertinent points regarding the manuscript:

1. The manuscript should be of the quality and length usually expected for publication in a peer reviewed scientific journal. Typically, a journal will be selected and instructions for authors for the journal will be followed for the manuscript section of the thesis.
2. The thesis should present major, substantive, and original research results.
3. The expanded methods section should not reiterate methods described in the thesis. Instead, it should present those issues that are deemed appropriate for evaluating the research, but that one might not present in as great detail when writing for a journal. To avoid repetition, it is recommended that additional details of methods be placed as more lengthy footnotes to articles or as appendices.
4. Additional detailed results (for example, results from full regression models, replicates of experiments, etc.) may be presented in appendices.
5. The synthesis chapter should provide:
 - (a) an overview of the major research findings;
 - (b) a discussion of significance: how the research contributes to the field, how it confirms previous work or breaks new ground, the context in which the research should be placed

- and/or where appropriate, a discussion of the health/nutrition/public health/policy significance of the work;
 - (c) a discussion of the major strengths and weaknesses of the work,
 - (d) directions for future research.
6. Each reference should include all authors, the title, volume, page numbers (first-last), year.

D. Application for Graduation

When a student nears the end of his or her research and can anticipate final approval of the Master thesis, he or she must complete an online application for graduation. The student must file a new application for the degree if he/she does not graduate as planned. Such applications must be filed by the deadline given in the "Calendar of Events" of the Catalog. Students will notify the Graduate School of their plan to graduate by applying online through the ConnectCarolina student portal.

E. Time Limitation

All requirements for the MS degree must be completed within five-years from the date of first registration in the Graduate School. An extension of the degree time limit may be granted upon petition to the Dean of the Graduate School.

VIII. APPENDIX

- A. BSPH/MS Dual Degree Program Application (*see next page*)