

Handbook for the Master of Science in Nutrition

2018 ~ 2019

I. Program Overview

The MS degree in Nutrition is offered to those students who wish to increase their knowledge of nutrition science and to acquire skills in laboratory and population-based research. This degree will be useful for students interested in nutrition research or in career in industry, as well as for students considering pursuit of a doctoral degree in medicine or in other areas of public health and biomedical sciences. MS students will perform advanced research in nutrition and take graduate nutrition 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 MS program offers an excellent opportunity to determine whether a more advanced degree would be appropriate. In summary, the MS program in Nutrition provides students the opportunity to explore nutrition at an advanced level.

The MS is also offered as a dual degree program with the BSPH in Nutrition. 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 MS in Nutrition. Additional competencies are completed through the BSPH program for students participating in the dual degree BSPH/MS.

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 it is used in research.
3. Demonstrate mastery of concepts in nutritional biochemistry and/or in other areas of nutrition science.
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

Applicants must hold an appropriate baccalaureate degree from a four-year college or university, or its international equivalent with a 3.0 GPA or better. Applicants must have completed coursework in the following areas: **organic chemistry, anatomy/physiology, biochemistry, and basic human nutrition**. For students whose background is strong, the basic human nutrition course may be taken after admission. Individuals with advanced degrees (such as the M.D., D.D.S. or equivalent professional degree) are also encouraged to apply. Priority will be given to applicants with previous research experience.

Applicants are required to submit Graduate Record Examination (GRE) scores. Physicians and dentists may submit Medical or Dental Aptitude Test scores in lieu of GRE scores. All international applicants — except those from countries where English is the SOLE OFFICIAL language of instruction (Australia, Bahamas, Barbados, Canada — except Quebec, England, Ghana, Ireland, India, Jamaica, Kenya, New Zealand, Nigeria, Scotland, St. Vincent and the Grenadines, Trinidad, Tobago, Uganda and Wales) OR those who have received or will receive a degree from a university in the United States — must submit an acceptable, official (reported directly from ETS) Test of English as a Foreign Language (TOEFL) score. If you are currently enrolled at a U.S. institution, you must submit an official transcript or verification of degree candidate status from that institution to qualify for a TOEFL waiver. If the degree or an official verification is not received, the TOEFL score will again be required. The minimum score accepted by the Graduate School is 90 for the internet-based and a 7 on the IELTS exam. In addition to satisfying the TOEFL requirement, all new international students must take the University's English Proficiency Test before registering for their first semester of study, unless they have been awarded a degree from a U.S. institution or are a resident of a country where English is the language of instruction. All international applicants who are offered admission to a graduate program are required to submit a financial certificate.

We recommend that you submit your COMPLETED online application before **December 1, 2018**. The Department of Nutrition administers the program (admissions, evaluation, etc.) with admissions decisions made by the departmental Masters of Science Committee. This Committee begins to offer admission in early January on a rolling basis to applicants whose applications are complete and submitted early. Applications received after December 1, 2017 will be considered on a case-by-case basis until the admission period is complete. No applications will be accepted by the Graduate School or Department after **January 8, 2019**.

Applications received before **December 11, 2018** will be eligible for consideration for Graduate School fellowships and assistantships.

http://gradschool.unc.edu/fellowships_and_funding/index.html

C. Time Required

A minimum of four semesters of "residence credit," at least two of which must be earned in continuous registration of at least 6-credit hours on the UNC campus is required. Registration for nine or more credit hours in a semester is considered full-time and earns a full semester of residence. Six to eight credit hours earn one-half semester of residence and three to five hours earn one-fourth semester of residence. Credits earned in any summer session count toward the residency requirement on the same basis as courses taken in regular semesters. The time needed to complete all requirements will ordinarily be two years, but may be shorter. A minimum of 30-credit hours must be earned in order to graduate.

For students in the dual degree BSPH/MS, 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.

II. FINANCIAL SUPPORT

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

A. The Nutrition Department

The department does not 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. 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 Academic Coordinator regarding sources of agency funding. The Academic Coordinator will also help applicants 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. 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.

<http://research.unc.edu/grantsource/>

III. THE FACULTY ADVISOR

A. Assignment of Advisor

At the time of *acceptance* to the MS program, students will have already identified a faculty member with whom they plan to do their Masters research and the faculty member will have agreed to supervise the student's research. That faculty member will be the student's research advisor.

The selection of a research advisor should be based primarily on the interests of the student and the expertise that a member of the graduate faculty can provide in the respective research areas. Students should inform the MS Program Director of their choice in writing, and provide a signed statement from the research advisor indicating willingness to serve in that capacity. The research advisor will serve as Chair of the Master's thesis committee, and must be a member of the Nutrition Department faculty and of the Graduate School faculty. The research advisor is responsible for conveying information about departmental expectations and procedures for the Master's thesis.

For students in the dual degree BSPH/MS, 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. Student/Master Advisor Relationship

Student/faculty communication is viewed as a mutual responsibility. The research advisor will serve as the major source of guidance. The members of the MS Committee will review the progress of all MS students biannually and provide feedback to the student and the advisor if necessary.

C. 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 significantly delay the student's progress through the MS program. Students should consult with the Program Director or the department Chair for assistance in making such a change. A change in advisor form can be obtained from the Academic Coordinator and will require the approval of the MS Committee.

IV. COURSES

The student will improve his/her knowledge of nutrition, learn research techniques in nutritional science, develop critical thinking skills, and perform original research. Ordinarily students will take the courses listed below; however, for those students with prior course work or experience, some courses may be exempted based on criteria established by the instructor of the course. Students are

welcomed and encouraged to take other courses offered in the School of Public Health as well as the wider-University.

A. SPH Courses

Graduates should understand methods used in the design and implementation of nutrition research, including the basics of epidemiology and biostatistics. Basic elements of research design will be tested in the doctoral comprehensive exam.

- BIOS 600 Principles of Statistical Inference (3 credits) – or –
- BBSP 610 Biostatistics for Laboratory Sciences (3 credits)
- EPID 600 Principles of Epidemiology (3 credits)
- SPHG 600 Introduction to Public Health (3 credits)

Students in the dual degree BSPH/MS do not need to complete these courses during the MS as they will have met these competencies through the BSPH program.

B. Nutrition Courses

- NUTR 600 Human Metabolism: Macronutrients (3 credits)
- NUTR 620 Human Metabolism: Micronutrients (3 credits)
- NUTR 885 Doctoral Seminar (4 sem./4 credits or 2 sem./2 credits for BSPH/MS)

Students in the dual degree BSPH/MS do not need to complete NUTR 600 or NUTR 620 during the MS as they will have completed these courses during the BSPH program.

Doctoral Seminar (NUTR 885) also contributes to the development of research methods core competency. MS students are required to participate for four semesters in the weekly Doctoral Seminar that serves as a forum to discuss current, controversial topics appearing in the nutrition literature and to present students' research in progress (students in the dual degree BSPH/MS will only take 2 semesters of this course). It is also a forum for regular interaction among doctoral students and faculty. The topics covered, and the development of *critical thinking skills* through discussions will help students to prepare for the masters comprehensive exam, and for the continued reading of the scientific literature required of scholars.

C. Critical Thinking

In addition to core research methods learned in basic biostatistics and epidemiology courses (as well as other core nutrition courses), MS students will perform independent research that expands the boundaries of knowledge in basic nutrition science. 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 appropriate skills for 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.

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

NUTR 910 Nutrition Research (3 credits per semester)

NUTR 993 Master Thesis (3 credits – to be taken in the final semester)

D. Electives

MS students are required to take additional courses from those offered by other departments such as Biology, Cell and Developmental Biology, Biochemistry and Biophysics, Genetics, Epidemiology, Biostatistics, Health Behavior etc., as well as other courses offered by the Department of Nutrition. See below for a list of examples. The Academic Coordinator should be notified by email that a course has been approved by the advisor as an elective.

- NUTR 745 International Nutrition
- NUTR 803 Nutrition Policy
- NUTR 670 Nutrition and Health Behavior
- NUTR 811 Development and Evaluation of Health Promotion and Disease Prevention
- NUTR 812 Introduction to Obesity: Cell to Society
- NUTR 813 Nutritional Epidemiology
- NUTR 814 Obesity Epidemiology
- NUTR 818 Analytical Methods in Nutritional Epidemiology
- NUTR 845 Nutritional Metabolism
- NUTR 865 Advanced Nutritional Biochemistry: Nutrigenetics and Nutrigenomics
- NUTR 868 Advanced Nutritional Biochemistry: Nutrition and Cancer
- HPM 715 Health Economics for Policy and Management
- HPM 880 Principles of Health Policy Research Methods
- BIOS 511 Introduction to Statistical Computing and Data Management
- BIOS 545 Principles of Experimental Analysis
- BIOS 610 Biostatistics for Laboratory Scientists
- EPID 700 SAS and Data Management

E. Typical Program

The MS curriculum will focus on courses that enhance understanding of nutrition, biochemistry, and physiology, as well as build on prior coursework (prerequisite NUTR 400 or equivalent). An illustrative set of courses follows:

Example of a Typical Course Load for the MS degree:

Year 1

Fall

- NUTR 600 Human Metabolism: Macro (3)
- NUTR Elective (2)
- NUTR 885 Doctoral Seminar (1)
- NUTR 910 Research (3)

Spring

- BIOS 600/BIOS 610 Biostatistics (3)
- NUTR 620 Human Metabolism: Micro (3)
- NUTR 885 Doctoral Seminar (1)
- NUTR 910 Research (3)

Summer

NUTR 910 Research (3)
 (Research can be started in the summer before year 1, depending on arrangements with preceptor)

Year 2

<i>Fall</i>		<i>Spring</i>	
NUTR Elective	(2)	Elective	(3)
NUTR 885 Doctoral Seminar	(1)	NUTR 885 Doctoral Seminar	(1)
EPID 600 Epidemiology	(3)	Elective	(3)
NUTR 910 Research	(3)	NUTR 993 ² Master Thesis	(3)
SPHG 600 Intro. to Public Health	(3)		

² The Capstone course for the degree

For students completing the dual degree BSPH/MS, the recommended structure is as follows:

Summer

NUTR 910 Research (3 per summer term, 6 total)

Fall

<i>Fall</i>		<i>Spring</i>	
Elective	(3)	Elective	(3)
Elective	(3)	NUTR 910 Research	(3)
NUTR 885 Doctoral Seminar	(1)	NUTR 885 Doctoral Seminar	(1)
NUTR 910 Research	(5)	NUTR 993 ² Master Thesis	(5)

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.

² The Capstone course for the degree

MS students should plan to spend 20 hours/week working on their research projects during the first semester. They will attend the weekly Doctoral Seminar with nutrition doctoral students and participate in end-of-semester lab presentations and departmental seminars.

G. Timing of Activities to Meet Requirements

Students should plan to meet all of their course and research requirements in two years of graduate study (preferably one year for dual degree BSPH/MS students). The comprehensive exam should be taken by March of the second year (or December of the first year for dual degree BSPH/MS students) and the Masters thesis completed by the date set by the Graduate School so that the student will be eligible to graduate in May of the second year (or May of the first year for dual degree BSPH/MS students).

V. **OTHER DEPARTMENT REQUIREMENTS**

A. Seminar Presentation

Each MS student must present one scheduled seminar to the MS Committee before graduation. This seminar, typically presented during the semester before graduation, reports the results of the student's MS research. Each MS student should schedule the seminar in consultation with his/her advisor.

B. Comprehensive Examination

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.

VI. SELECTION OF THE MASTER THESIS COMMITTEE

A. Composition

By the beginning of the second year (first semester of first year for dual degree BSPH/MS students), the student and his/her research advisor will choose a Masters Thesis committee. This 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

MS students are responsible for consulting with members of their thesis committee at intervals throughout their research. At a minimum, students should submit a progress report and meet with each committee member at least once during each semester.

The first formal meeting of the student and his/her committee should be held at the beginning of the second academic year (first year for dual degree BSPH/MS students). The agenda usually includes a review of the student's previous educational and working experiences, courses taken while in the MS program, and presentation and defense of the research proposal. The second formal meeting would be the oral defense of the Masters thesis. The mentor, student or the committee members may request that additional meetings prior to defense be held if necessary.

VII. MASTERS RESEARCH

A. Research

The research proposal typically includes a survey of the research literature, a statement of the testable hypotheses and research objective(s), detailed description of the research methodology and significance of the proposed research, and preliminary data, if available. However, 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.

Each MS student together with his or her research advisor should develop a research project that enhances both independent thinking and technical achievement. The student cannot assume that the research advisor is expert in a wide range of topics or that the research advisor will become expert in whatever topic the student chooses. Generally, the closer a student's topic to the research advisor's area of expertise, the more the student will learn. For dual degree BSPH/MS students, research will be a continuation of the Honors Thesis Research they began during the BSPH program.

B. Masters Research

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's 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 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 Thesis committee is best able to make decisions on the acceptability of an individual student's work.

C. 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 examination. The committee may, at the time of the final oral, but not later, require revisions to the Master thesis.

D. 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 include (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 MS Committee 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.
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.

VIII. COURSE DESCRIPTIONS

NUTR 175 INTRODUCTION TO FOOD STUDIES; FROM SCIENCE TO SOCIETY (3)

Introduction to food studies covering a variety of topics including how food was consumed over history, land use and aquaculture, food in the arts, food and culture in the American South, food politics and nutrition science. Fall. Beck and Faculty.

NUTR 240 INTRODUCTION TO HUMAN NUTRITION (3)

Prerequisites, BIOL 101/101L and CHEM 102/102L. Relationships of human nutrition to health and disease. Integration of biology, chemistry, and social sciences as related to human function. Nutrient composition of foods and safety of the food supply. Fall. Beck and Faculty.

NUTR 245 SUSTAINABLE LOCAL FOOD SYSTEMS: INTERSECTION OF LOCAL FOODS AND PUBLIC HEALTH (3)

Examines the intersection of local foods and public health in respect to nutrition, environmental, economic, and community issues. Students explore impacts of the increasingly industrialized and centralized food system, as well as, potential solutions, while assisting community partners increase opportunities for farmers, local food marketers, distributors, and entrepreneurs. Spring. Demarco and Ammerman.

NUTR 295 UNDERGRADUATE RESEARCH EXPERIENCE IN NUTRITION (3)

Permission of the instructor. For undergraduates enrolled in the department's baccalaureate degree program. Directed readings or laboratory study on a selected topic. May be taken more than once for credit. Fall, Spring, Summer. Faculty.

NUTR 400 INTRODUCTION TO NUTRITIONAL BIOCHEMISTRY (3)

Prerequisites, BIOL 101, CHEM 101, 102 and NUTR 240. Permission of the instructor for students lacking the prerequisites. Function of the human body focusing on chemical properties, function and metabolism of nutrients. Biochemistry of nutrients with a limited focus on medical aspects of nutrient metabolism. For advanced undergraduates and graduate students needing to enhance background prior to NUTR 600. Spring. Styblo and Krupenko, S.

NUTR 600 HUMAN METABOLISM: MACRONUTRIENTS (3)

Prerequisite, NUTR 400. Permission of the instructor for students lacking the prerequisites. Cell biochemistry and physiology emphasizing integration of proteins, carbohydrates and lipids in whole-body metabolism, regulation of energy expenditure, food intake, metabolic adaptations, and gene expression, and macronutrient-related diseases (atherosclerosis, obesity). Fall. Coleman.

NUTR 611 NUTRITION ACROSS THE LIFE CYCLE (3)

Prerequisite, NUTR 400. This course covers nutrition during the life cycle. Units include women during preconception, pregnancy, and lactation; infancy; childhood; adolescence; and older adults (65+). Nutrient and energy needs, assessment of nutritional status, and cultural and socioeconomic barriers are discussed for each phase. Fall. Holliday and Wasser.

NUTR 620 HUMAN METABOLISM: MICRONUTRIENTS (3)

Prerequisite, NUTR 400 and 600. Permission of the instructor for students lacking the prerequisites. Cell biochemistry and physiology emphasizing metabolism of vitamins and minerals including antioxidant protection, immune function, nutrient control of gene expression and disease states induced by deficiencies (e.g., iron-deficient anemia). Spring. Krupenko, N.

NUTR 630 NUTRITION COMMUNICATION, COUNSELING AND CULTURE (3)

Prerequisite, NUTR 240. Permission of the instructor for students lacking the prerequisite. Course teaches the future nutrition professional the art and science of communicating with individuals, groups, and the public. Students will enhance cultural awareness, practice counseling individuals and facilitating groups, and frame nutrition messages for mass media including social media. Fall. Sayre

NUTR 640 MEDICAL NUTRITION THERAPY(4)

Prerequisite, NUTR 630. Course designed to examine the rationale and implementation of diet therapy and nutrition support in the prevention or treatment of chronic diseases. Spring. Holliday.

NUTR 650 FOOD SCIENCE AND CULINARY ARTS (2)

Prerequisite, NUTR 400. Introduction to foods, chemical and physical properties, nutritional composition, food safety, production, and regulation. NUTR 650 Lab required. Spring. Faculty

NUTR 650L FOOD SCIENCE AND CULINARY ARTS LAB (1)

Concurrent with NUTR 650. Classes illustrate biochemical processes and food properties covered in lecture. Introduction to new foods and food ideas. Critical evaluation of recipes. Lab fee required. Three lab hours per week. Spring. Faculty

NUTR 670 NUTRITION AND HEALTH BEHAVIOR (3)

Introduction to social and behavioral science theories, research and interventions aimed at promoting health through nutrition. Spring. Ward and Valle.

NUTR 692H HONORS RESEARCH IN NUTRITION (3)

Permission of instructor. Directed readings or laboratory study of a selected topic. Requires a written proposal to be submitted to and approved by BSPH Committee and faculty research director. A written report is required. May be taken more than once for credit. Six laboratory hours per week. Fall, spring, summer. Faculty.

NUTR 695 NUTRITION RESEARCH (VAR. 1-9)

Permission of the instructor. Individual arrangements with faculty for bachelor and master students to participate in ongoing research. Fall, spring, and summer. Faculty.

NUTR 696 READINGS IN NUTRITION (VAR. 1-9)

Permission of the instructor. Reading and tutorial guidance in special areas of nutrition. Fall, spring, and summer. Faculty.

NUTR 700 NUTRITION IN MEDICINE (2)

Prerequisite, BIOL 252 and NUTR 600 or equivalent. Comprehensive review of nutrition basics with strong clinical perspective. Integrates nutrient biochemistry and metabolism into a framework of nutritional assessment and dietary intervention. Fall. Kohlmeier.

NUTR 723 PUBLIC HEALTH NUTRITION MANAGEMENT 3)

Prerequisites, NUTR 630 and 640, HBEH 600. Focuses on the roles and functions of the public health nutritionist in providing nutrition services at the community level that includes domestic and international nutrition programs, essential public health services, community assessment methods,

and community engagement. For the MPH-RD student, it includes the 336 hours of field experience. Fall. Gallagher and Martin.

NUTR 745 INTERNATIONAL NUTRITION (3)

Provides a broad overview of international nutrition research issues, programs, and policies. Topics will include micronutrient deficiencies, child feeding and growth, determinants of under- and over-nutrition, chronic disease and nutrition, food fortification and supplementation, and nutrition intervention programs and policy. Fall. Adair and Bentley.

NUTR 746 TAXES, BANS, & BURGERS: DIRECTED READINGS IN GLOBAL FOOD POLICY (1)

Prerequisite, permission of the instructor for non-majors. Course will explore the social, historical, and political context of how individuals make decisions about what to eat; how this context shapes food policy; and how these policies in turn shape individual behavior, by employing a comparative framework over three countries (China, Mexico, and the U.S.) Spring. Smith-Taillie

NUTR 785 GRADUATE TEACHING EXPERIENCE (1)

Prerequisite, permission of the instructor. Individual arrangements with faculty for a graduate student to serve as a teaching assistant for a Nutrition course. Fall and Spring. Beck.

NUTR 805 NUTRITION POLICY (3)

Prerequisite, permission of the instructor for non-majors. Course will address current public health nutrition policy challenges and controversies including school lunch standards, sugar sweetened beverages, the Farm Bill, federal food programs, the Affordable Care Act, and policies affecting local food systems such as food policy councils, farm to school programs, and agricultural practices (GAP) certification. The course will cover policy issues at federal, state, and local levels, as well as issues that affect multiple levels of policy. Fall. Ammerman and Ng

NUTR 812 INTRODUCTION TO OBESITY: CELL TO SOCIETY (3)

Prerequisite, permission of the instructor. This course provides a broad survey of obesity research including measurement issues, biological, social and economic etiologies, health and economic consequences, and prevention and treatment of obesity. Spring. Voruganti and Poti.

NUTR 813 NUTRITIONAL EPIDEMIOLOGY (3)

Prerequisites, EPID 600 or 710 and BIOS 600 or equivalent. This course introduces basic methods of dietary assessment, reviews various topics in nutrition epidemiology and teaches the skills needed for critical evaluation of the nutritional epidemiologic literature. Spring. Meyer and Smith-Taillie

NUTR 814 OBESITY EPIDEMIOLOGY (3)

Prerequisites, BIOS 600, EPID 710, EPID 715, and NUTR/EPID 813. Examines epidemiology research on the causes, consequences, and prevention of obesity. Emphasis on methodological issues pertinent to obesity research. Spring, alternating years. Stevens and Poti.

NUTR 818 ANALYTICAL METHODS IN NUTRITIONAL EPIDEMIOLOGY (3)

Prerequisites, EPID 600 or 710, NUTR 813 and BIOS 545, or permission of the instructor. Skills and techniques to study how dietary exposures, physical activity and anthropometric status relate to disease outcomes. Focus is hands on data analysis using STATA, and interpretation of results from statistical analysis. Fall, alternate years. Adair and Meyer.

NUTR 845 NUTRITIONAL METABOLISM (3)

Prerequisite, NUTR 600 or equivalent. A problem-based approach to examine current topics in biochemistry relevant to nutrition and metabolism. Students interpret data and design experiments related to recent advances in nutritional biochemistry. Spring. Carroll

NUTR 865/GNET 865 ADV. NUTRITIONAL BIOCHEMISTRY: NUTRIGENETICS AND NUTRIGENOMICS (2)

Permission of Instructor. Course focuses on nutrigenetics and nutrigenomics with an emphasis on the genetic and dietary interactions predisposing one to increased risk of disease. Spring. Voruganti.

NUTR 868 ADV. NUTRITIONAL BIOCHEMISTRY: NUTRITION AND CANCER (2)

Permission of Instructor. Course evaluates literature and current concepts in the field of nutrition and cancer to develop skills in presenting and discussing scientific research. Spring. Hursting and Krupenko, S.

NUTR 880 ELEMENTS OF BEING A SCIENTIST (3)

Prerequisites, for doctoral students permitted by instructor/prepared with PHD aims/focus. Students must have successfully completed the comprehensive exam prior to enrolling. Course focuses on key elements that contribute to a successful career as a scientific researcher. These include scientific presentations, NIH proposal grant writing, evaluating published manuscripts, sources of funding, peer review, use of animals and humans in research, and scientific ethics. Fall. Zeisel, Ward, and Gordon-Larsen.

NUTR 885 DOCTORAL SEMINAR (1)

This course is designed for doctoral and master of science students only. Critical review of current literature in nutritional biochemistry, intervention and policy, and population-based nutrition science. Focuses on the development of skills in reviewing and criticizing articles. Fall/Spring. Faculty.

NUTR 910 NUTRITION RESEARCH (VAR. 1-9)

Individual arrangements with faculty for doctoral students to participate in ongoing research. Fall, spring, and summer. Faculty.

NUTR 920 RESEARCH ROTATIONS FOR NUTRITIONAL BIOCHEMISTRY DOCTORAL STUDENTS (VAR. 1-3)

Two laboratory or research group rotations supervised by nutritional biochemistry faculty. Provides a breadth of research experience for students prior to selecting dissertation adviser. Up to six laboratory hours per week. Fall, spring, and summer.

NUTR 992 MASTER'S PAPER (3)

Fall, spring, and summer. Faculty.

NUTR 993 MASTER'S THESIS (3)

Fall, spring, and summer. Faculty.

NUTR 994 DOCTORAL DISSERTATION (3)

Fall, spring, and summer. Faculty.

IX. MS IN NUTRITION COURSE CHECKLIST FOR 2018-2019

MS Degree Requirement Worksheet					Student's Name/PID #
Course Number	Course Title	Semester Completed	Credits	Grade(s)	Pertinent notes: all substitutions and exemptions.
SPH CORE					
BIOS 600/ BIOS 610	Principles of Statistical Inference/ Biostatistics for Laboratory Scientists		3.0		
EPID 600	Principles of Epidemiology		3.0		
SPHG 600	Introduction to Public Health		3.0		
DEPT CORE					
NUTR 600	Human Metabolism: Macronutrients		3.0		
NUTR 620	Human Metabolism: Micronutrients		3.0		
NUTR 885	Doctoral Seminar		1.0		
NUTR 885	Doctoral Seminar		1.0		
NUTR 885	Doctoral Seminar		1.0		
NUTR 885	Doctoral Seminar		1.0		
NUTR 910	Nutrition Research		3.0		
NUTR 910	Nutrition Research		3.0		
NUTR 910	Nutrition Research		3.0		
NUTR 910	Nutrition Research		3.0		
	MS Comprehensive Examination		Required		
NUTR 993	Master Thesis		3.0		
ELECTIVE(S)					

Dual Degree BSPH/MS Requirement Worksheet					
Course Number	Course Title	Semester Completed	Credits	Grade(s)	Pertinent notes: all substitutions and exemptions.
DEPT CORE					
NUTR 885	Doctoral Seminar		1.0		
NUTR 885	Doctoral Seminar		1.0		
NUTR 910	Nutrition Research		3.0		
NUTR 910	Nutrition Research		3.0		
NUTR 910	Nutrition Research		3.0		
NUTR 910	Nutrition Research		3.0		
	MS Comprehensive Examination		Required		
NUTR 993	Master Thesis		3.0		
ELECTIVE(S)					