

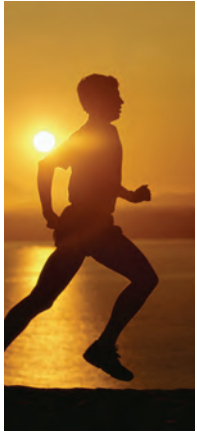
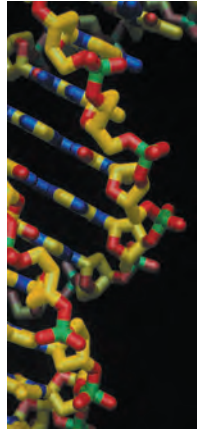
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# 2015-2016

## H A N D B O O K

### *Department of Nutrition*

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*School of Public Health*

*School of Medicine*

*University of North Carolina  
at Chapel Hill*



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Doctor of Philosophy • Doctor of Public Health

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# Handbook for the Doctoral Program in Nutrition

## 2015 ~ 2016

### I. INTRODUCTION

#### A. Program Overview and Divisions

The PhD degree program prepares graduates for leadership in academic and related settings that emphasize teaching and research. PhD students conduct original research, and their degree culminates in a dissertation that expands the boundaries of nutrition knowledge, theory, and/or methodology.

Nutrition covers the continuum from basic nutrition science through improving the health of the public. It is our philosophy that all doctoral students should be familiar with the broad spectrum of areas that comprise nutrition, and should also receive in depth training in a single area or specialization. Faculty interests in the Department of Nutrition address a range of topics which center on the role of nutrition in disease prevention and healthy development. Research and teaching interests in the Department reflect the role of nutrition in successful pregnancy outcomes, the physical and mental development of infants and children, and the promotion of health and prevention of chronic diseases throughout life.

The Department of Nutrition has three major training divisions: **Nutritional Biochemistry, Nutrition Epidemiology, and Nutrition Intervention and Policy**. The divisions have been developed to create focused training programs for students in three distinct areas of nutrition. Each division offers a set of courses that allows doctoral students to initiate focused training programs.

The Nutritional Biochemistry division is committed to understanding the mechanisms of nutrient action in human health and disease from a cellular and molecular perspective. Ongoing research focuses on oxidants and antioxidants, growth factors, adipocyte biology, lipid metabolism, cellular physiology and signaling, clinical nutrition, nutritional influences on brain development, the genetics of obesity and exercise, nutritional influences on immune function, and the molecular biology of nutrient-related diseases like obesity, diabetes, and atherosclerosis. Graduates of our program are currently research scientists and professors at universities and scientists in government and industry research laboratories.

The Nutrition Epidemiology division trains graduate students of nutrition interested in determining the contribution (protective and detrimental) of dietary-related factors to the development of diseases, analyzing the role of nutrition in growth and development, understanding the determinants and consequences of nutritional trends, and trying to intervene at the population level to change diets. Graduates conduct epidemiological research in academic, research, and government centers at the national and international level.

The Nutrition Intervention and Policy division trains doctoral students in theory-based interventions at the individual, community, environmental, and policy levels to improve health and nutrition outcomes. This includes interventions related to diet, physical activity, and behavior change for the prevention of chronic diseases. Training in both qualitative and quantitative methods provides students with the skills to develop and evaluate programs. Students are also grounded in basic principles of nutrition and health policy. Graduates of the program conduct intervention and evaluation research in academic settings and advise policy makers in state and federal governments, industry, and public health administration.

In addition, it is possible for prospective applicants who have interests that span divisions or disciplines, it is possible to develop a training plan and dissertation topic that is transdisciplinary in nature. For example, we have students in nutrition intervention and policy who take on an epidemiology minor; we have nutrition biochemistry students who are involved in clinical feeding studies; and we have epidemiologist students who are working with molecular genetics data. Our faculty conduct a wide range of collaborative research studies with active cutting edge, trans-disciplinary research.

## **B. Admission 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 human nutrition**. Individuals with advanced degrees (such as a Master's degree, M.D., D.D.S. or equivalent professional degree) are also encouraged to apply. Applicants who wish to study nutritional biochemistry should have relevant laboratory experience. For the Nutrition Intervention and Policy Division, preference is given to applicants with experience in intervention and/or policy applications or research. Due to the competing demands of internship and research hours, admission to the doctoral program concurrent with enrollment in the MPH-RD program within the UNC Department of Nutrition is allowable only under special permission from the doctoral committee and the proposed advisor.

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 550 for the paper-based total (a minimum score of 50 on each section), 79 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 must also complete a financial certificate.

Applicants should submit a two-page personal statement which describes (1) specific aspects of nutrition that interest them and the names of faculty members with whom they might like to work, and (2) previous research or job experience. Applicants should also identify specific research skills (data analysis, laboratory methods, survey development, etc.) they have acquired. Those applicants with prior research experience should describe in detail their research projects, including hypotheses tested, methods, results and conclusions. Applicants should also include (3) their career goals after completing graduate studies; and (4) any additional information they would like the committee to have. A description of the required content of the personal statement will be sent to all individuals who request application materials.

We recommend that you submit your online COMPLETED application before **December 1, 2015**. The PhD 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, 2015

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 12, 2016**.

Applications received before **December 15, 2015** will be eligible for consideration for Graduate School fellowships and assistantships.

[http://gradschool.unc.edu/fellowships\\_and\\_funding/index.html](http://gradschool.unc.edu/fellowships_and_funding/index.html)

### **C. Residence Credit Requirement**

UNC requires a minimum of four semesters of "residence credit", at least two of which must be earned in contiguous registration of at least six-credit hours on this campus. 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 during regular semesters. In addition, the Department requires that a minimum of 12-months must lapse between defense of the dissertation proposal and the final defense of the dissertation. The majority of students in the program take four to five calendar years to complete a doctoral degree. The time required varies depending on whether students enter after completion of the bachelor's or master's degree, and on the nature of the research project selected by the student. A minimum of 30-credit hours must be earned in order to graduate.

### **D. In-State Residence Status**

Students planning to stay in North Carolina for an extended period should begin immediately to apply for in-state resident status for tuition purposes. Students new to the state should obtain a North Carolina driver's license and register to vote. After one-year of residency, application is made to the graduate school and forms may be obtained from the following website:

<http://gradschool.unc.edu/studentlife/resources/residency/>

## **II. FINANCIAL SUPPORT**

Financial assistance may be available through the Nutrition Department, the School of Public Health, the University, and private and public agencies. Details of these funding sources are described below. Strong GRE scores and prior university grades increase the likelihood of funding. While the goal of the Department is to provide comparable levels of support for all students, the exact level of support may vary by funding source. All students who are accepted for admission are guaranteed funding for at least their first two years of study.

### **A. The Nutrition Department**

The Department offers traineeships and research or teaching assistantships. Opportunities for employment on faculty research grants may also be available for doctoral students.

1. **Department training grants.** The Department has one National Institutes of Health (NIH) grant for predoctoral training which helps support four (4) students.. Grants provide tuition and fees (up to 60%), a stipend, and health insurance. These NIH traineeships, open only to U.S. citizens or permanent residents, are awarded on a competitive basis and require sponsorship by a faculty member.

2. **Faculty research grants.** Department faculty members direct a large number of intervention and policy, epidemiological population-based, and biochemistry grants from the NIH and other funding agencies.

## **B. The Gillings School of Global Public Health**

Some merit-based or other scholarships are offered by the Gillings School of Global Public Health to entering PhD students on a competitive basis. Recommendations of students for these funding opportunities are made through the Nutrition Department Doctoral Committee.

## **C. The Graduate School**

Merit assistantships and other scholarships are offered to entering doctoral students on a competitive basis. The Department's Doctoral Committee applies for these on behalf of the student.

## **D. The University**

Students may apply for financial assistance from the Office of Scholarships and Student Aid. The Grant Source Library 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. Some agencies provide training support only, some dissertation support only and some both training and dissertation support. 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. See website at:

<http://fundingportal.unc.edu/>

## **E. Examples of Other Funding**

1. **The Agency for Health Care Quality (AHRQ)** supports dissertation research in the area of health service delivery. Applications may be obtained from Chief, Review and Advisory Services (Dissertations), NCHSR, Parklawn Building, 5600 Fishers Lane, Room 18A-20, Rockville, MD 20857, (301) 443-3091.
2. Students working in the area of reproductive health or nutrition and population may be eligible for traineeships from the **Carolina Population Center**. Faculty sponsorship is necessary (see Drs. Barry Popkin, Linda Adair, Penny Gordon-Larsen, Peggy Bentley, Michelle Mendez, Anna Maria Siega-Riz, and Sandra Albrecht). Applications may be obtained from Jan Hendrickson, CPC Training Program Coordinator, Carolina Population Center, University Square, CB#8120, Chapel Hill, NC 27599-8120.
3. **National Institute of General Medical Sciences (NIGMS)** supports individual dissertation research. Website: <http://www.nigms.nih.gov/>
4. **Ford Foundation Predoctoral and Dissertation Fellowships for Minorities** supports research in the behavioral and social sciences. Applications may be obtained after September 1st from the Fellowship Office, National Research Council, 2101 Constitution Avenue, Washington, DC 20418, (202) 334-2872.

Other sources of predoctoral funding include the National Science Foundation, UNC Lineberger Comprehensive Cancer Center, UNC Sheps Center, American Heart Association, and UNC Center of

Health Promotion and Disease Prevention. Additional information is available via the Graduate School website at:

<http://gradschool.unc.edu/funding/>

#### **F. Doctoral Student Work Policy**

In unique circumstances, advanced doctoral students (2nd year and beyond) may have the opportunity to work on *substantial* research, program, or clinical projects outside of the dissertation research as an opportunity to obtain additional research experience. Substantial in this case means that it is sufficiently substantial to merit additional pay and effort. It is expected that such participation would expand the student's training experience and result in a scholarly product. The experience for pay needs to be clearly justified relative to a) the gain to the student towards meeting his/her career goals as reflected in the students' Individual Development Plan (IDP), and b) not delaying the dissertation research and preferably strongly supporting the dissertation development. Please see Appendix F.

### **III. THE FACULTY ADVISOR**

#### **A. Assignment of Advisor**

It is typical that at the time of admission to the doctoral program, most students have identified the faculty member with whom they will conduct their dissertation research; that faculty member will be assigned as the student's research advisor. When uncertainty exists as to the research advisor, a temporary academic advisor will be assigned to help the student select courses during the first year. This does not represent assignment of the research advisor.

Students must identify a research advisor by August of the second year following enrollment. The research advisor will help students choose courses appropriate for their specialization, identify a dissertation research topic, and assist in funding. The selection of a research advisor should be based primarily on the interest of the student, the expertise that a member of the graduate faculty can provide in the research area, and a willingness by the faculty member to accept the student as a mentee. It's the advisor's responsibility to assist the graduate student in obtaining financial support for dissertation research. Students should inform the Chair of the Doctoral Committee and the relevant division director in writing their research advisor choice, and provide a signed statement from the advisor indicating willingness to serve in that capacity. The research advisor replaces the student's previous academic advisor. The research advisor will serve as chair of the student's dissertation committee, and must be a member of the Nutrition Department faculty and a regular member of the Graduate School faculty. If the advisor holds a primary appointment in a different department, a faculty member with a primary appointment in Nutrition must be appointed as co-chair of the dissertation committee. Exception to this requirement exists when a faculty member holds a 50% appointment in the Department of Nutrition; no co-chair is required. In the case where co-chairmanship exists, the primary nutrition faculty member has the responsibility to convey information about departmental expectations and procedures for dissertation committees.

#### **B. Student/Doctoral Advisor Relationship**

Student/faculty communication is a mutual responsibility. The advisor serves as the major source of guidance until the dissertation committee has been chosen. During the year(s) when students are involved primarily in course work, they should meet at least once per semester with their academic or



research advisor to review progress and plan future work. Once a research advisor is chosen, students should meet with advisors at least once per month. To assist in reviewing progress, students and advisors will be provided with a checklist of plans and requirements. The checklist should be regularly updated and reviewed with the advisor. The Doctoral Committee will review the progress of all doctoral students annually and apprise faculty advisers and division directors of any problems. See Section IX for information on the monitoring of student progress.

### **C. Changing the Research Advisor**

On rare occasions, it may be necessary for a change in the research advisor. Such a change may be initiated by the student or the research advisor. When the student desires a change in the research advisor, either within or between divisions, the student must: a) notify the current research advisor about his/her interest in making such a change; b) obtain an agreement on funding source; and c) complete a change of advisor form (available from the Nutrition Student Services Manager). No change in research advisor can occur without clear communication among the parties involved.

When the research advisor suggests such a change, the student must be given written information on the deficiencies noted and provided sufficient time (at least one semester) to remediate these deficiencies. The notification of deficiencies and student progress toward remediation will be monitored by the Nutrition Department Doctoral Committee. If the student is unable to remediate deficiencies as determined by the research advisor and certified by the Doctoral Committee, the student will be terminated as a PhD student in the Department of Nutrition.

If a research mentor leaves the University or becomes deceased, the student will be offered the opportunity to work with another faculty member but without a guarantee of continuing the original research topic area. If the loss of the research advisor occurred following the first two years of PhD training, funding is not guaranteed.

## **IV. NUTRITION DEPARTMENT DIVISIONS AND COURSE REQUIREMENTS**

### **A. Core Competencies**

The comprehensive examination, required for all doctoral students, will be based on the core competencies developed by the three divisions. Ordinarily, all students take core courses to gain such competencies. However, for students with prior course work or relevant experience, some core courses may be exempted based on criteria established by the Doctoral Committee and the instructor of the core course.

Core courses include School of Public Health core courses required for all doctoral students, Nutrition Department core courses representing essential knowledge as specified by each division. The core courses are as follows:

#### School of Public Health Core Courses

EPID 600 Principles of Epidemiology (3 credits)

**OR\***

EPID 710 Fundamentals of Epidemiology (for Epidemiology minors) (4 credits)

\*students may take EPID 600 or EPID 710

HBEH 600 Social and Behavioral Sciences in Public Health (3 credits)

SPHG 600 Introduction to Public Health (3 credits)

*NUTR EPI and IP Students:*

BIOS 545 Principles of Experimental Analysis (3 credits)

*NUTR BIO Students:*

BIOS 600 Principles of Statistical Inference (3 credits)

**OR**

BIOS 610 Biostatistics for Laboratory Scientists (3 credits)

*Note: These courses are required of all graduates of the School of Public Health. Exemptions from School of Public Health required courses are based on formal application to the Department teaching the course. Exemption forms may be obtained online at:*

[http://www.sph.unc.edu/student\\_affairs/taking\\_classes.html#corecourseexemption](http://www.sph.unc.edu/student_affairs/taking_classes.html#corecourseexemption).

Departmental Core Courses (Credit hours vary for each division.)

*Nutritional Biochemistry Students:*

NUTR 600 Human Metabolism: Macronutrients (3 credits)

NUTR 620 Human Metabolism: Micronutrients (3 credits)

NUTR 845 Nutrition Metabolism (3 credits)

**OR** Prior coursework/experience deemed adequate

*Nutrition Epidemiology Students:*

NUTR 600 Human Metabolism: Macronutrients (3 credits)

NUTR 620 Human Metabolism: Micronutrients (3 credits)

NUTR 813 Nutritional Epidemiology (3 credits)

**OR** Prior coursework/experience deemed adequate

*Nutrition Intervention and Policy Students:*

NUTR 600 Human Metabolism: Macronutrients (3 credits)

NUTR 620 Human Metabolism: Micronutrients (3 credits)

NUTR 801 Advanced Nutrition Intervention and Research Methods I (2 credits)

NUTR 803 Nutrition Intervention Advanced Research Seminar (2 credits)

NUTR 809 Applied Qualitative Research Methods (2 credits)

NUTR 811 Development of HPDP Interventions (3 credits)

NUTR 813 Nutritional Epidemiology (3 credits)

**OR** Prior coursework/experience deemed adequate

**NUTR 885 Doctoral Seminar** (1 credit/semester), also a core requirement, contributes to the development of research methods competencies. Doctoral students must participate in the Doctoral Seminar for the first two years of the doctoral program with a four semester sequence that involves: (1) attending seminars and critically evaluating them in small groups; (2) attending research presentations by 2nd year students with active participation and engagement; (3) critically evaluating nutrition papers from current, peer reviewed journals; and (4) 2nd year students present recent research articles with

emphasis on critical appraisal and formal presentation skills. After students pass the comprehensive exam, all doctoral students are encouraged to continue to participate. The seminar serves as a forum for discussion of current and controversial topics appearing in the nutrition literature. 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 doctoral comprehensive exam, and for the continued reading of the scientific literature required of any scholar. In addition, doctoral students should attend all regularly scheduled departmental seminars.

While enrolled in NUTR 885, all incoming doctoral students will be required to successfully complete the Collaborative Institutional Training Initiative (CITI) training during their first year along with the National Institute of Health “Responsible Conduct of Research (RCR) ethics training, which is required at least every four (4) years. CITI training is needed before a student can engage in research so should be completed immediately if the student plans to work with data or on research projects at UNC. Both CITI and RCR must be completed before taking the doctoral comprehensive examination. The Nutrition course instructor will be responsible for providing the CITI and RCR training certification of completion to the department student services manager.

<http://research.unc.edu/offices/human-research-ethics/getting-started/training/>

Another core requirement is **NUTR 880 Elements of Being a Scientist** (3 credits). Doctoral students participate in “Elements” after they have passed the doctoral comprehensive exam. This course focuses on key elements that contribute to a successful career as a scientific researcher. As part of the NIH “Responsible Conduct of Research (RCR)” that must be updated at least every four (4) years, students will satisfy the RCR refresher course requirement as part of NUTR 880. The RCR training must be completed before a student can defend their dissertation oral proposal defense. The Nutrition course instructor will be responsible for providing the RCR training certification of completion to the department student services manager.

## **B. Research Methods Requirements**

In addition to core research methods learned in basic biostatistics and epidemiology courses (as well as other core nutrition courses), graduates should be able to conduct independent research which expands the boundaries of knowledge in either nutritional biochemistry, clinical nutrition, nutrition epidemiology, or nutrition intervention and policy. This research should include:

1. Formulating an original research question.
2. Understanding of alternate research designs, and methods, including sample selection and measurement strategies.
3. Carrying out a research project, including learning the appropriate skills for the collection of data and/or the use of secondary data.
4. Developing statistical and analytic skills needed to test hypotheses and interpret results.
5. Developing skills in writing needed to report the research findings in an original dissertation and in papers for scholarly journals.

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

## Required Courses:

NUTR 785	Graduate Teaching Experience (1 credit)
NUTR 880	Elements of Being a Scientist (3 credits)
NUTR 910	Nutrition Research (3 credit minimum). All students must enroll in at least 3 credit hours of NUTR 910 during the first 4 semesters of their PhD training.
NUTR 994	Dissertation (3 credits)

## **C. Additional Division-specific Requirements**

### **Nutritional Biochemistry**

Students in nutritional biochemistry must take NUTR 845 and two of the listed 2-credit seminar courses. At least one of these courses will be taught each semester. Students must also complete two laboratory rotations (2-semesters of NUTR 920). PhD students who already have a MS degree in biochemistry will complete one laboratory rotation.

NUTR 845*	Nutritional Metabolism
NUTR 861	Advanced Nutrition Biochemistry: Nutrition and Immunology
NUTR 863	Advanced Nutritional Biochemistry: Microenvironments: Inflammation in Obesity, Atherosclerosis and Cancer
NUTR 864	Advanced Nutritional Biochemistry: Oxidative Stress and Nutritional Antioxidants in Human Health and Disease
NUTR 865	Advanced Nutritional Biochemistry: Nutrigenetics and Nutrigenomics
NUTR 867	Advanced Nutritional Biochemistry: Vitamins and Disease
NUTR 868	Nutrients and Disease: Brain Function and Development
HBEH 600*	Social and Behavioral Sciences in Public Health

\* Must be taken prior to registration for the comprehensive examination

### **Nutrition Epidemiology**

Students in nutritional epidemiology are required to take NUTR 813, NUTR 818 and obtain a formal minor in Epidemiology. The Epidemiology minor requires a total of 15-credit hours including EPID 710 (4-credits), EPID 715 (4-credits) and EPID 716 (2-credits), with the remaining credit hours in any substantive epidemiology courses from the list below. Other options must be approved by the Division Director. All students must pass a statistical package proficiency exam in order to enroll in the Epidemiology classes. This exam is generally given in the summer prior to the start of classes (e.g., in the 2014-2015 academic year a proficiency exam in SAS was due in early August 2014. To receive a formal minor in Epidemiology, students must have an Epidemiology faculty member with primary appointment in Epidemiology on their dissertation committee.

Please note that BIOS 545 and EPID 705 are prerequisites for EPID 715, but are not included in the 15-credit hours. Students are required to obtain a passing grade “P” or higher in each of these courses. If not then the faculty may wish to have this student take additional course work or perform additional activities to remedy the deficiency in the course material.

NUTR 813*	Nutritional Epidemiology
NUTR 814	Obesity Epidemiology
NUTR 818	Analytical Methods in Nutritional Epidemiology
HBEH 600*	Social and Behavioral Sciences in Public Health
EPID 735	Cardiovascular Disease Epidemiology
EPID 743	Genetic Epidemiology: Methods and Application
EPID 755	Introduction to Infectious Disease Epidemiology
EPID 756	Control of Infectious Diseases in Developing Countries
EPID 757	Epidemiology of HIV/Aids in Developing Countries
EPID 770	Cancer Epidemiology and Pathogenesis
EPID 827	Social Epidemiology: Analysis and Interpretation
EPID 851	Reproductive and Perinatal Epidemiology

\* Must be completed prior to comprehensive examination

## **Nutrition Intervention and Policy**

Students in nutrition intervention and policy are required to take the following courses:

NUTR 801*	Advanced Nutrition Intervention and Research Methods I
NUTR 803*	Nutrition Intervention Research Advanced Seminar (2 semesters)
NUTR 809*	Applied Qualitative Research Methods
NUTR 811*	Development of Health Promotion and Disease Prevention Interventions (prerequisite – HBEH 600)
NUTR 813*	Nutritional Epidemiology
HBEH 600*	Social and Behavioral Sciences in Public Health
One additional upper level biostatistics or analytic course (higher than BIOS 600 & BIOS 545).	

\* Must be completed prior to comprehensive examination.

## **E. Timing of Activities to Meet Requirements**

Normally, students should plan to meet all of their core course requirements during the first two years of graduate study. Some students may wish to complete the majority of their core requirements in the first year. Others may wish to combine core requirements with some research experience and/or elective courses, and thus, spread core requirements over two years. However, students must take prerequisites for core courses in the first year. For example, NUTR 813 Nutrition Epidemiology has BIOS 600 and EPID 600 or EPID 710 as prerequisites. Students should consult with their academic advisor to decide on the program that would best meet their needs.

The proposal defense can be scheduled after passing the comprehensive examination and after obtaining permission from the Graduate School. Students usually defend their dissertation proposal during year 3.

## **V. OTHER DEPARTMENT REQUIREMENTS**

### **A. Teaching Experience**

Each student will gain teaching experience by working with a nutrition faculty member to teach components of a 3-credit hour nutrition course or equivalent course. This involves: 1) preparing and

giving two lectures, (2) preparing the reading list for these two lectures, (3) attending some of the course lectures, and (4) evaluating students with the course instructor. The course instructor will give teaching students a written evaluation of their work in the course and send a copy to the student services manager. All students will be required to register for NUTR 785 (1-credit) to earn credit for their teaching experience. Doctoral students, who are paid as TAs to assist with a course, will perform additional tasks.

The Center for Faculty Excellence (CFE) offers help for students who desire additional instruction on teaching. During orientation each fall, CFE offers various workshops on leading discussions, making up exams, grading, slides, etc.

<http://cfe.unc.edu/>

## **B. Doctoral Comprehensive Examination**

### **Philosophy**

The underlying philosophy which guides the structure of our doctoral training program in nutrition is that students who earn a PhD in nutrition at UNC-CH should have basic knowledge and understanding of the underlying biology of nutrition/health/disease relationships, nutrition epidemiology, and nutrition intervention and policy. Our curriculum is designed to provide basic course work in all of these areas, and our comprehensive exam is designed to test competency and critical thinking skills in all of these areas. At the same time, students are expected to specialize in their education and develop exemplary skills in one of these areas. The two-part comprehensive examination tests students' specific skills and ability to integrate across areas of nutrition.

The *integrative* section of the comprehensive exam tests the student's ability to put a research question in a broader context, that is, to show an understanding of the basic biology, epidemiology and intervention/policy implications of a nutrition issue. This format is a realistic one for students, who should be able, upon completion of their education, to cogently present and discuss their work in a broad context. For example, in writing the background and significance for a grant proposal, a nutrition epidemiologist needs to be able to explain the underlying biological rationale for the diet-disease relationship under study, and to explain how advancing knowledge will inform interventions or policies to improve health. The researcher need not be an expert in all of these areas, but will need to know how to read and effectively use the literature to integrate the concepts.

The *integrative* exam is written and evaluated by a committee that includes at least one faculty member from each division. It is an open book, take-home examination with a prescribed word limit. Students will have 3 days to complete the exam. Students may use library resources, and the exam will test their ability to integrate and interpret information from multiple relevant sources. If the exam committee judges that any portion of essay is inadequate for a passing grade, the student will be given feedback and an opportunity to re-write all or specified parts of the exam within an assigned time period. The exam committee will provide specific guidance on the extent of revisions required. If, after revision, the exam is still inadequate for a passing grade, the student must retake the examination the next time it is offered (typically in the following school year). A student who fails the second attempt may petition the Graduate School to retake the exam. The Nutrition Department Doctoral Committee and the Department Chair must support the petition before a student may proceed in the program.

The *division-specific* section of the comprehensive exam tests knowledge and critical thinking skills in the student's discipline. It is a written exam, administered, and evaluated by at least two faculty members in the student's division. The written exam is followed by an oral exam several days later. The oral exam is completed after faculty members have assessed the student's written exam, and it is

designed to probe further in areas that may be deficient. A pass/fail decision on the division-specific exam is based on both the written and oral examinations. A student who fails the division-specific exam is required to retake the exam at a future date determined by the exam committee. A student who fails the second attempt must petition the Graduate School in order to retake the exam. The Nutrition Department Doctoral Committee and the Department Chair must support the petition by the exam committee.

A student must pass the division-specific and integrative sections of the comprehensive exam before eligibility for doctoral candidacy can be determined. Doctoral candidacy is required before the student can defend his/her dissertation proposal.

*Eligibility to take the comprehensive exams:*

All students must enroll full-time in the department of Nutrition for at least one academic year before taking the comprehensive exam. Before a student is eligible to take the comprehensive exam, he/she must have completed the following: CITI training, NUTR 600, 620, and HBEH 600. In addition, students in Nutrition Epidemiology must also take NUTR 813 (or its equivalent). Students in Nutrition Intervention and Policy must take NUTR 801, 803, 809, 811, 813, and BIOS 545. Students in the Nutritional Biochemistry must take NUTR 845. All students must earn a grade of “P” or higher in each course to be eligible to take the exam. Students are expected to take the comprehensive examination in the second year of the doctoral program. In rare circumstances a student might be eligible to take the exam at the end of the first year. Students wishing to take the exam at the end of the first year in the program are required to obtain permission from their faculty advisor and the doctoral committee.

Students who fail or earn a low pass “L” in a required course must retake the course once in order to earn the required grade. A student who fails or earns a low pass a second time will be ineligible to take the doctoral comprehensive exam.

*Structure of the exam (both parts are given in a 7-day period):*

The following is a general plan for the scheduling of the exam components. Traditionally, exams will be given in late May to early June. Exact timing may vary slightly based on weekends, holidays, etc.

- Day 1: Division specific comps
- Day 2: Break
- Day 3: Integrative question distributed for completion as an open book take-home exam
- Day 6: Integrative written papers turned in
- Day 7: Division-specific oral exams

If a student with a disability/chronic medical condition is being seen through the Accessibility Resources and Service Department or the Learning Center, they should contact the Student Services Manager immediately, so that special accommodations can be arranged several months in advance for their comprehensive examination.

## VI. SELECTION OF THE DISSERTATION COMMITTEE

### A. Composition

After passing the comprehensive examination, the research faculty advisor and student will choose a dissertation committee. The dissertation committee must have at least five members, one of whom (the faculty research advisor) is named the chair. **The chair and at least two other members must hold a primary or joint appointment in the Department of Nutrition.** Each committee must include at least one tenured NUTR faculty member to serve on the dissertation committee in addition to the mentor. This person should be from a different research group than is of focus of the dissertation. In addition, any student receiving a minor in another field, such as Epidemiology, must have a regular member of the Epidemiology faculty on the dissertation committee.

Example of a NUTRITION doctoral committee that fits the requirements:

1. Mentor (Committee Chair) Nutrition Primary Faculty Member
2. Tenured Nutrition Primary Faculty Member (from different research group)
3. Nutrition Primary Faculty Member
4. Nutrition/HBHE Joint Appointment Faculty Member
5. Genetics Primary Faculty Member

Example of a NUTRITION doctoral committee with MINOR in EPIDEMIOLOGY that fits the requirements

1. Mentor (Committee Chair) Nutrition Primary Faculty Member
2. Tenured Nutrition Primary Faculty Member (from different research group)
3. Nutrition Primary Faculty Member
4. Epidemiology Primary Faculty Member
5. Genetics Primary Faculty Member

Example of a NUTRITION doctoral committee that does NOT fit the requirements:

1. Mentor (Committee Chair) Nutrition Primary Faculty Member
2. Nutrition Assistant Professor Primary Faculty Member
3. Nutrition Research (Non-Primary) Track Faculty Member
4. HBHE Primary Faculty Member
5. Genetics Primary Faculty Member

At least three committee members must be full members of the Graduate Faculty. Committee members who are not full members of the Graduate Faculty (fixed term UNC faculty and/or individuals from other institutions 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. Students are encouraged to include at least one member from outside the Department of Nutrition. If the student has a minor field of study, at least one member of the committee must represent the minor field. Committee members are nominated by the Chair of the Nutrition Department Doctoral Committee using the "Recommendation for Composition of Doctoral Dissertation Committee" form, which must be sent to the Graduate School for approval. Students should get the form from the Nutrition Student Services Manager and obtain required approvals and signatures. The Student Services Manager will review the dissertation committee to insure that it meets minimum requirements before it is approved by the Doctoral Committee and Graduate School. Once the committee is appointed, changes or substitutions among the members require additional approvals and signatures. The Doctoral Committee must approve the initial composition of the committee and any requested substitutions of committee members. A written



request should be submitted to the Student Services Manager in an email. This email will be sent to the doctoral committee for consideration. The email should include the tentative dissertation title, a brief description of the dissertation (1-2 sentences), and the names of all committee members. The email must include a brief description of the expertise of any proposed committee member who is not a full member of the graduate faculty in the Department of Nutrition (see student services manager for example).

## **B. Functions**

Doctoral students should consult with members of their dissertation committee at frequent intervals throughout the progress of their research. At a minimum, students are required to complete a yearly Individual Development Plan (IDP) (Appendix D) and meet with each committee member at least once each semester during the research and dissertation-writing stage. Each student should have several formal meetings with a committee. The actual number and content of these meetings is left to the discretion of each research advisor, but a minimum of three meetings is suggested.

The first formal meeting should be held when the dissertation committee is established. The agenda usually includes a review of the student's previous educational and working experiences, courses taken while in the doctoral program, and ideas for dissertation research. During this meeting, additional ways to develop the student's area of expertise are discussed and agreed upon. The second formal meeting would be an oral defense of the dissertation proposal. The last formal meeting is the dissertation defense and seminar.

## **VII. THE DISSERTATION PROPOSAL AND DISSERTATION PROPOSAL DEFENSE**

### **A. Dissertation Proposal**

The student who has passed the doctoral comprehensive examination and both components of the NIH RCR training as part of NUTR 885 and NUTR 880 is eligible to begin working on the dissertation proposal will work with their advisor and committee to write the proposal. The doctoral candidate cannot begin work on the dissertation (e.g., collecting, data, formal analysis of data) until the dissertation committee has approved the student's direction of research. While in some cases, the collection of pilot data or preliminary analyses might be completed prior to the proposal defense, these analyses and data collection are considered preliminary and not part of the dissertation research. Thus, the formal dissertation research should follow the satisfactory proposal defense. The student is responsible for bringing the official paperwork to be signed by the dissertation committee members to the proposal defense for committee signatures. The form should be picked up and returned to the Student Services Manager.

The proposal must include a survey of the research literature, a statement of research objective(s), a detailed description of the research methods, and the significance of the proposed research. Before any data are collected, research involving human subjects must have the approval of the student's faculty adviser and the Institutional Review Board for the Protection of Human Subjects (IRB). Animal studies must be approved by the Institutional Animal Care and Use Committee (IUCAC).

The selection of a dissertation topic should be a joint decision between student and advisor. The doctoral program is often the one opportunity that a developing scientist has to pursue research with the guidance and help of an advisor. Students usually learn the most if their research area is one in which their advisor is expert. Students cannot assume that their advisor is an expert in all topics or that the advisor will become an expert in whatever topic the student chooses. Generally, the closer a student's

topic to the advisor's area of expertise, the more the student will learn. It is usually a mistake for a student to embark on an area of research in which his or her advisor is not well experienced.

## **B. Dissertation Proposal Defense**

After satisfactory completion of the core comprehensive examination, the student must conduct a dissertation proposal defense, which focuses on the student's research proposal and on subject matter related to the proposed research. A request to take this "second doctoral examination" (as noted in the Graduate School Handbook) must be filed with the Graduate School at least one week before the date of the oral defense. Forms are available from the department Student Services Manager. Ordinarily, the student prepares a presentation of the proposal, and committee members pose questions and issues for discussion. Students should consult with their committee members as the proposal is developed and a draft of the proposal should be submitted to the committee members for review at least two weeks before the proposal defense. Either the student or the student's research adviser shall notify every member of the Dissertation Committee as to the purpose, time and place of the examination. The five members of the Dissertation Committee must be present for the oral examination. A pass will be based on the presentation of an acceptable proposal and on the demonstration of a satisfactory level of knowledge in the subject matter of the dissertation and related areas. The student must receive a passing grade from a 2/3 majority of the members of the Dissertation Committee. A student who fails the proposal defense will be given a second opportunity. Students who fail a second time are ineligible to continue in the Graduate School. The student is responsible for bringing the official paperwork to be signed by the dissertation committee members to the dissertation defense for committee signatures. The form should be picked up and returned to the Student Services Manager.

## **C. Changes to the Dissertation Proposal**

After satisfactory defense of the proposal, the student may begin dissertation research. If, during the course of the dissertation research, the student must make changes that result in a substantial difference in the dissertation, the student must receive approval from a 2/3 majority of the members of the Dissertation Committee. A substantial difference includes use of different datasets, different research questions, and substantially different methods that would result in a paper or papers that would be substantially different from what was originally proposed. Such approval is necessary before any work on the revised dissertation begins. The approval process includes a memo of no more than 1 page to be submitted to committee members. The document must include a rationale for the change in research direction as well as the substantial changes proposed.

## **D. Changes to the Dissertation Committee**

Once a dissertation committee is constituted, changes to the committee require formal approval. The first step in such a change is a meeting among the THREE (or more) regular Nutrition Faculty Members of the dissertation committee to discuss and agree with any compositional changes to the dissertation committee. A statement to this effect needs to be sent from dissertation committee chair to the student services manager with copied to doctoral committee chair AND all three primary faculty dissertation committee members describing the need for such a change. These change requests will be reviewed by the Doctoral Committee. The change to the dissertation committee must also be approved by the Graduate School.

## **VIII. FINAL DISSERTATION DEFENSE AND APPLICATION FOR DEGREE**

### **A. The Dissertation**

Through conceptualizing, planning and executing research and through the experience of writing a proposal and dissertation, the doctoral student learns some of the most important skills of a modern scientist. Scientists need these skills to succeed. The learning that is done through completing the dissertation distinguishes a doctoral student from a master's student. The dissertation indicates that the candidate has mastered research methodology, has a grasp of the historical and theoretical aspects of the research topic, has contributed new knowledge, and has successfully accomplished the goals and objectives outlined in the dissertation proposal. The student is required to register for NUTR 910 Nutrition Research (6-credits) and NUTR 994 Doctoral Dissertation (3-credits) each semester until graduation. It is the student's responsibility to register for these courses.

The dissertation should consist of a detailed introduction that elaborates on the background and significance of the work. A series of manuscripts follows. These should contain additional, more specific sections of introduction, synthesis, conclusion and/or speculation. An expanded methods section may be included if the manuscripts do not contain details of the methods or if the student needs to show additional validation of the methods that were used. The dissertation should include at least two first-authored papers, which must have been submitted to journals before the dissertation defense. If the student's research forms part of a large multi-center project with a publication committee that must approve all journal submissions, submission to this committee is acceptable. A student's committee can petition the Doctoral Committee for deviations from this policy when the deviation is scientifically justified.

### **B. Format of the Dissertation**

The dissertation should include a set of related manuscripts united by an appropriate review of the literature, an expanded methods section, and an overall synthesis of the research findings and discussion of significance and direction for future research. See the following guidelines for preparation of a dissertation in this format:

1. Each manuscript should be of the quality and length usually expected for publication in a peer reviewed scientific journal.
2. A minimum of two research papers must be included, but three papers are recommended. These may include methodological papers, but must include at least one paper presenting major, substantive research results.
3. A high quality review paper of sufficient merit for publication may substitute for the literature review, but unless special justification is provided this will not count as one of the two required papers.
4. Additional detailed methods and results may be presented in appendices.
5. Introduction and synthesis chapters should reflect the entire body of research reflected in the dissertation, that is, they should synthesize across the individual papers. They should provide (not necessarily in the following order):
  - Background and literature review
  - An overview of the major research findings

- 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
  - A discussion of the major strengths and weaknesses of the work
  - Directions for future research
6. The doctoral candidate is expected to assume the role of lead author, exercising responsibilities and decision-making prerogatives with advice from the dissertation committee chair. Authorship recommendations from the scientific editors of the major health sciences journals serve as the guidelines for this process. The doctoral advisor is responsible for assisting in negotiating authorship issues, particularly in the case of multi-site collaborations, and for studies that have established publication and authorship policies. (See Appendix G).

### **C. Dissertation Defense and Seminar**

When the student has completed a draft of the dissertation, and the doctoral committee has certified that all other degree requirements have been met, the dissertation defense may be scheduled. The public and private portions of the final defense of the dissertation are held on the same day. Exceptions to this rule require permission of the student's Dissertation Chair and the Doctoral Committee. The oral examination is held only after all members of the dissertation committee have had an adequate opportunity to review a draft of the dissertation. Committee members should be given a completed draft at least two weeks before the scheduled oral defense date.

At the dissertation defense, the student presents a 40-50 minute seminar to discuss the methods, results and significance of the dissertation research. Following this seminar, which is open to the department, the general audience may ask the student questions. The dissertation committee will meet privately with the candidate to ask additional questions. This will constitute the final dissertation defense. All committee members must sign the final dissertation form. This form is available from the Student Services Manager. The committee may, at the time of the final defense, but not later, require revisions to the dissertation.

The Graduate School will accept only dissertations produced according to the standards in *A Guide to Theses and Dissertations* (electronic submission). Dissertations must be prepared in a form consistent with approved methods of scholarly writing and research. On matters of form, the student should also consult published manuals of style. It is suggested that a draft copy of the dissertation be pre-approved by Graduate School staff well before the submission deadline. Dissertations must be submitted to the Graduate School according to the schedule in the University Registrar's Calendar.

### **D. Application for Degree**

When a candidate nears the end of his/her research and can anticipate final approval of the dissertation, he/she must apply to graduate online. If the degree is not received at that graduation, the student must re-file a new application for the degree. 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**

A minimum of 12-months must lapse between defense of the dissertation proposal and the final defense of the dissertation unless approved by the PHD Committee. All requirements for the degree

must be completed within eight 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.

## **IX. MONITORING STUDENT PROGRESS**

A checklist of all requirements for the doctoral degree is included as Appendix C. Students and their academic advisors should use the checklist to help monitor progress toward meeting requirements. The primary mechanism for monitoring student progress is through a formal start-of-the-year Individual Development Plan (IDP) for all doctoral students (Appendix D). Each student will complete an IDP, which will become an evolving document that is updated each year to reflect each student's stage in the training program. The IDP will be part of an ongoing monitoring system to track potential problems in a student's program. By January 1<sup>st</sup>, each student will send their IDP to the student services manager (SSM) and to their dissertation advisor.

Each student is responsible for his/her IDP and will meet regularly with their dissertation advisor to reflect on the goals set in the IDP. Each year, students will prepare an IDP and send to their dissertation advisory by January 1<sup>st</sup>. Before January 31<sup>st</sup>, each student will meet with their dissertation advisor (and secondary mentor if the student has a secondary mentor) to review the IDP and set goals for the year. The first IDP is prepared in the first year, thereafter the student will update the IDP and meet with the faculty advisor in January. The purpose of the Progress Review Meeting is to: review student progress in the program and discuss future plans; identify and discuss any concerns with an eye toward successful and timely progress in the program; provide feedback on the student's academic year; answer any questions the student might have; and hear the student's assessment. Following the meeting, the student will prepare a brief summary statement of the dissertation advisor's recommendations and forward an electronic copy of the IDP and the summary statement to the student services manager. The SSM will provide an electronic copy of the IDP and summary to division chairs and doctoral committee. Each division will review student progress at the end of each academic year relative to the IDP.

At the department level, ongoing monitoring will be used to track student progress. The purpose of monitoring is early identification of problems, so that they may be remediated in a timely fashion. Monitoring will include both continuous and periodic monitoring as noted in Appendix D.

Students failing to make adequate progress will be notified and appropriate actions will be made.

## APPENDICES

### APPENDIX A. MINORS

Several formal minor degree-training programs are available. In most cases, a formal minor requires 15-credits and a dissertation, which is related to the minor. A few examples are listed below:

#### A. EPIDEMIOLOGY MINOR

Students must obtain an official minor in epidemiology, as part of the joint Nutrition Epidemiology program. The following criteria must be met to declare a minor in Epidemiology:

The Epidemiology department's Graduate Studies Committee has established a set of guidelines as to what constitutes a minor in this department. The following criteria must be met to declare a minor in Epidemiology:

- Doctoral level status
- Minimum of 15 credits hours in EPID
- EPID 710 and EPID 715/EPID 716 (co-requisites), with the remainder of credits in any other substantive epidemiology courses.  
**[EPID 705 is a pre-requisite for EPID 715, but does not count toward the minor.] Do not list this course on your minor declaration form.] EPID 718 is not required for the minor nor does it count towards the minor.**

#### Additional Criteria:

- EPID 600 hours will not count toward a minor in epidemiology.
- Neither independent study hours nor research hours will count toward an epidemiology minor.
- No transfer courses will count toward an epidemiology minor.
- The EPID Office of Student Services [MC 2106] will assist in the planning of appropriate courses.
- A minor advisor is not required.
- Approval of the minor must be verified by the Department of Epidemiology, Office of Student Services, prior to declaring the minor. A form required for declaring the minor is available from the Student Services Office. The form must be signed by the major advisor and the Department of Epidemiology's Assistant to the Chair for Graduate Studies. **The student must file a copy with the Department of Epidemiology Student Services Office and the student's major department. The student is responsible for filing the original with The Graduate School.**
- Graduate School policy requires that the dissertation committee include at least one faculty member from the minor program.
- Effective Fall 2005, students must earn a grade of P or better in courses applying to the minor.
- **The Department's "L" grade policy applies to core methods courses for all minor students.**
- **Any student with an EPID minor must have an Epidemiology Regular Faculty member on their dissertation committee.**

## **“L” Grade Policy:**

The following policy applies to a grade of L in an Epidemiology “core methods” course (i.e., EPID 705, EPID 710, EPID 715, EPID 716, EPID 718, and EPID 722):

- A grade of L in a core methods course requires that a meeting among the student, the advisor, the course instructor, and the Student Services Office take place within two weeks. The purpose of the meeting is to ascertain the factors associated with the poor performance and to implement the steps described below. The student’s advisor is responsible for initiating this meeting at the earliest convenience of all involved.
- Students who receive a grade of L in a core methods course must re-take the course and receive a minimum of a P, unless exempted as described below.
- The student is expected to retake the course – or to be granted an exemption by the GSC – within one year of taking the core methods course that resulted in an L grade. If this time line is not met the student must ask his/her advisor to present an alternative time line to the GSC.
- The time line for a student’s Intradepartmental Review is not affected by an L grade.
- Students who take a core methods course as part of a minor in epidemiology are required to adhere to the L grade policy of the Department of Epidemiology.

### **Conditional advancement to a higher-level course for a student who receives a grade of L in a core methods course.**

- Students who receive a grade of L in a core methods course may advance to the pertinent higher-level methods course in epidemiology (prior to re-taking the course in which they received an L) only if approved by the instructor of the higher-level course and endorsed by the student’s advisor.

### **Exemption from the requirement to re-take a core methods course.**

- A high performance in the higher-level course (above the 85<sup>th</sup> percentile) allows the student to submit a request to the GSC to be exempted from having to re-take the lower level course graded as ‘low pass’ (L).

Questions should be directed to: Valerie Hudock (966-7458; [vhudock@unc.edu](mailto:vhudock@unc.edu)) or [epidemiology@unc.edu](mailto:epidemiology@unc.edu).

## **B. EXERCISE PHYSIOLOGY MINOR**

Students may obtain an official minor in exercise physiology. The objective of the minor is to allow the nutrition student to understand the relationship of nutrition and exercise and provide skills needed to conduct research on the nutritional aspects of exercise. The student will select an Exercise Physiology faculty member as a minor adviser. This faculty member will also serve as a dissertation committee member. Students should complete their dissertation on a topic related to nutrition and exercise physiology. Fifteen credits of exercise physiology-related course work are required as part of this minor. Any student with an EXSS minor must have an EXSS Regular Faculty member on their dissertation committee. The course requirements for this minor are:

EXSS 780	Physiology of Exercise (4 credits)
EXSS 782	Nutritional Aspects of Exercise (3 credits)
EXSS 783	Assessment of Physiological Functions in Exercise (3 credits)

The six remaining required credits are electives chosen from among the following courses:

EPID 735	Epidemiology of Cardiovascular Disease (3 credits)
EXSS 410	Exercise Testing and Prescription (3 credits)
EXSS 781	Clinical Exercise Testing and Prescription (3 credits)
EXSS 785	Seminar in Exercise Physiology (3 credits)
EXSS 789	Practicum in Exercise Physiology (3 credits)
EXSS 890	Special Topics in Physical Education (3 credits)
EXSS 990	Research in Physical Education (3 credits)

## **C. HEALTH BEHAVIOR, HEALTH EDUCATION MINOR**

Any student in a doctoral program of The University of North Carolina at Chapel Hill or other accredited university can work toward a minor in health behavior and health education. A faculty member in the Department of Health Behavior and Health Education must agree to serve as the minor advisor for the student. The minor advisor must have a primary appointment in the Department of Health Behavior and Health Education (all ranks except adjunct and visiting) and be a member of the Graduate Faculty of the University. The minor advisor may have responsibilities in addition to those described herein, such as service on academic committees and participation in the oral examination administered by the student's major department.

**Credits:** The student must earn a minimum of 15-credits with a grade of P or above in courses offered by the Department of Health Behavior and Health Education. The minor advisor approves the credits to apply to the minor. The minor program must be approved in written form in advance by an authorized faculty member in the major department, the minor advisor, and the director of the doctoral program in the Department of Health Behavior and Health Education. The approved program must be filed in the Department of Health Behavior and Health Education and the Graduate School.

**Examination:** After a minimum of 15-credits has been completed, the student must pass a written or oral examination in the minor area. The minor advisor will arrange examination preparation and grading. A student who fails the minor comprehensive examination may not take the examination a second time until at least three months have elapsed. A student who fails an examination for the second time is ineligible for completing the minor and may not be examined a third time without approval by the Administrative Board of the Graduate School. Any student with an HBEH minor must have an HBEH Regular Faculty member on their dissertation committee.



## **APPENDIX B.        LEARNING OBJECTIVES**

The doctoral degree prepares graduates for leadership in academic and related settings, which emphasize teaching and research. PhD students conduct original research culminating in a dissertation that expands the boundaries of nutrition knowledge, theory, or methodology. PhD students are expected to gain and demonstrate basic competency in nutritional biochemistry, nutrition epidemiology, nutrition intervention and policy, research design, and methodology. Although the degree requirements diverge in the areas of research and specialization, all doctoral students share core-learning objectives.

Documentation:

### **1. Stated Learning Objectives**

The doctoral committee and Associate Chair review and revise learning objectives during each academic year, and these are included as part of the doctoral handbook for incoming students. The learning objectives reflect the departmental approach abroad core training in nutrition, in addition to specialization in one of three divisions (biochemistry, interventions/policy, and epidemiology).

Upon satisfactory completion of the PhD program in the Department of Nutrition, all graduates will be able to:

- 1) Describe the basic principles of nutritional biochemistry and the biological mechanisms underlying the relationships between nutrient intakes, nutrient utilization, genetic factors, disease development, and health maintenance.
- 2) Describe the relationship between nutritional biochemistry and normal cell function.
- 3) Explain the implications of nutritional biochemistry on disease processes such as:
  - The etiology and pathogenesis of under- and over-nutrition
  - Multi-factorial chronic diseases such as hypertension, cardiovascular disease, diabetes mellitus, cancer, and osteoporosis
  - Specific nutrient deficiency diseases such as anemias and vitamin and mineral deficiencies
- 4) Describe determinants of dietary intake.
- 5) Evaluate the major approaches to improving the nutritional status of populations through public policy and programs.
- 6) Describe theoretical models of behavior change as applied to interventions to improve diet, nutrition, and health.
- 7) Describe how socioeconomic, demographic, and biological factors interact to affect dietary behaviors in large populations.
- 8) Describe, from an epidemiological perspective, how dietary intake and nutritional status interact with other socioeconomic, demographic, and biological factors to affect health outcomes.
- 9) Formulate an original research question.
- 10) Evaluate alternate research designs and methods in laboratory, clinical, population-based, or community settings where nutritional factors act as either exposures or outcomes.
- 11) Develop and carry out an independent research project, including management of project design, data management, statistical analysis, hypothesis testing, and results interpretation.
- 12) Communicate study results in papers suitable for scholarly journals.

APPENDIX C. COURSE REQUIREMENTS FOR THE DOCTORAL DEGREE

NUTRITION PHD BIOCHEMISTRY (BIO) DIVISION WORKSHEET

PHD-BIO Degree Requirement Worksheet			Student's Name/PID # _____		
Course Number	Course Title	Semester Completed	Credits	Grade(s)	Pertinent notes: all substitutions and exemptions.
<b>SPH CORE</b>					
BIOS 600/ BIOS 610	Principles of Statistical Inference/ Biostatistics for Laboratory Scientists		3.0		
EPID 600/ EPID 710	Principles of Epidemiology/ Fundamentals of Epidemiology		3.0		
HBEH 600*	Social and Behavioral Sciences in Public Health		3.0		
SPHG 600	Introduction to Public Health		3.0		
<b>PHD COMPREHENSIVE EXAMINATION COURSE REQUIREMENTS</b>					
NUTR 600	Human Metabolism: Macronutrients		3.0		
NUTR 620	Human Metabolism: Micronutrients		3.0		
NUTR 845	Nutritional Metabolism		3.0		
<b>BIO DIVISION REQUIRED COURSES</b>					
NUTR 785	Graduate Teaching Experience		1.0		
NUTR 880	Elements of Being A Scientist		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 920	Nutrition Research Rotations		3.0		
NUTR 920	Nutrition Research Rotations		3.0		
<b>ADDITIONAL BIO DIVISION CORE REQUIREMENTS (NUTR 845 plus two of the other courses listed)</b>					
NUTR 861	Advanced Nutritional Biochemistry: Nutrition and Immunology		2.0		
NUTR 863	Advanced Nutritional Biochemistry: Microenvironments: Inflammation in Obesity, Atherosclerosis and Cancer		2.0		
NUTR 864	Advanced Nutritional Biochemistry: Oxidative Stress and Nutritional Antioxidants in Human Health and Disease		2.0		
NUTR 865	Advanced Nutritional Biochemistry: Nutrigenetics and Nutrigenomics		2.0		
NUTR 867	Advanced Nutritional Biochemistry: Vitamins and Disease		2.0		
NUTR 868	Nutrients and Disease: Brain Function and Development		2.0		
	Any Other Course Approved by Biochemistry Division				
<b>NUTRITION RESEARCH AND DOCTORAL DISSERTATION (multiple semesters)</b>					
NUTR 910	Nutrition Research		3.0		
NUTR 994	Doctoral Dissertation		3.0		
<b>TOTAL CREDIT HOURS FOR GRADUATION: 36 course credit hours + (research/dissertation hours)</b>					
<b>ELECTIVE(S)</b>					

\*HBEH 600 is required for the doctoral comprehensive examination.

# NUTRITION PHD EPIDEMIOLOGY (EPI) DIVISION WORKSHEET

PHD-EPI Degree Requirement Worksheet			Student's Name/PID # _____		
Course Number	Course Title	Semester Completed	Credits	Grade(s)	Pertinent notes: all substitutions and exemptions.
<b>SPH CORE</b>					
BIOS 545	Principles of Experimental Analysis		3.0		
EPID 710	Fundamentals of Epidemiology		4.0		
HBEH 600-01W*	Social and Behavioral Sciences In Public Health		3.0		
SPHG 600	Introduction to Public Health		3.0		
<b>PHD COMPREHENSIVE EXAMINATION COURSE REQUIREMENTS</b>					
NUTR 600	Human Metabolism: Macronutrients		3.0		
NUTR 620	Human Metabolism: Micronutrients		3.0		
NUTR 813/** EPID 813	Nutritional Epidemiology		3.0		
<b>EPI DIVISION REQUIRED COURSES</b>					
NUTR 785	Graduate Teaching Experience		1.0		
NUTR 818/ EPID 818**	Analytical Methods in Nutrition Epidemiology		3.0		
NUTR 880	Elements of Being A Scientist		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		
<b>EPIDEMIOLOGY MINOR REQUIRED COURSES:</b>					
EPID 705	Introduction to Deductive and Probability Logic in Epidemiology		2.0		
EPID 710	Fundamentals of Epidemiology		4.0		
EPID 715	Theory and Quantitative Methods in Epidemiology		4.0		
EPID 716	Epidemiologic Data Analysis		2.0		
Plus remainder of credits in any <b>substantive</b> epidemiology courses listed below:					
EPID 735**	Cardiovascular Disease Epidemiology		3.0		
EPID 743**	Genetic Epidemiology: Methods and Application		3.0		
EPID 755**	Intro. To Infectious Disease Epidemiology		3.0		
EPID 756**	Control of Infectious Diseases in Developing Countries		3.0		
EPID 757**	Epidemiology of HIV/Aids in Developing Countries		3.0		
EPID 770**	Cancer Epidemiology and Pathogenesis		3.0		
NUTR 814/ EPID 814**	Obesity Epidemiology		3.0		
EPID 827**	Social Epidemiology: Analysis and Interpretation		2.0		
EPID 851**	Reproductive and Perinatal Epidemiology		3.0		
<b>NUTRITION RESEARCH AND DOCTORAL DISSERTATION (multiple semesters)</b>					
NUTR 910	Nutrition Research		3.0		
NUTR 994	Doctoral Dissertation		3.0		
<b>TOTAL CREDIT HOURS FOR GRADUATION: 47 course credit hours + (research/dissertation hours)</b>					
<b>ELECTIVE(S)</b>					

\*HBEH 600 is required for the doctoral comprehensive examination.

\*\*Approved substantive epidemiology courses by NUTR EPI Division.

# NUTRITION PHD INTERVENTION AND POLICY (IP) DIVISION WORKSHEET

PHD-IP Degree Requirement Worksheet			Student's Name/PID # _____		
Course Number	Course Title	Semester Completed	Credits	Grade(s)	Pertinent notes: all substitutions and exemptions.
<b>SPH CORE</b>					
BIOS 545*	Principles of Experimental Analysis		3.0		
EPID 600/ EPID 710	Principles of Epidemiology/ Fundamentals of Epidemiology		3.0		
HBEH 600-01W*	Social and Behavioral Sciences in Public Health (prereq. For NUTR 811)		3.0		
SPHG 600	Introduction to Public Health		3.0		
<b>PHD COMPREHENSIVE EXAMINATION COURSE REQUIREMENTS</b>					
NUTR 600	Human Metabolism: Macronutrients		3.0		
NUTR 620	Human Metabolism: Micronutrients		3.0		
NUTR 801	Advanced Nutrition Intervention and Research Methods I		2.0		
NUTR 803	Nutrition Intervention Research Advanced Seminar		2.0		
NUTR 809	Applied Qualitative Research Methods		2.0		
NUTR 811/ HBEH 811	Development of HPDP Interventions		3.0		
NUTR 813	Nutritional Epidemiology		3.0		
<b>IP DIVISION REQUIRED COURSES</b>					
NUTR 785	Graduate Teaching Experience		1.0		
NUTR 880	Elements of Being A Scientist		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		
	One Additional Upper Level Statistics or Analytical Course (higher than BIOS 600 & BIOS 545)		3.0		
<b>NUTRITION RESEARCH AND DOCTORAL DISSERTATION (multiple semesters)</b>					
NUTR 910	Nutrition Research		3.0		
NUTR 994	Doctoral Dissertation		3.0		
<b>TOTAL CREDIT HOURS FOR GRADUATION: 33 course credit hours + (research/dissertation hours)</b>					
<b>ELECTIVE(S)</b>					

\*BIOS 600 and HBEH 600 is required for the doctoral comprehensive examination.

## **APPENDIX D. COURSE DESCRIPTIONS FOR 2015 – 2016**

### **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. De Marco 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 nutrient interaction. 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 and Hursting.

### **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. Siega-Riz, Holliday and Samuel-Hodge.

### **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. and Makowski.

### **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. Sommers.

**NUTR 640 MEDICAL NUTRITION THERAPY I: CHRONIC DISEASE MNGT. (3)**

*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 642 MEDICAL NUTRITION THERAPY II: ACUTE DISEASE MNGT. (3)**

*Prerequisite, NUTR 640.* Course designed to examine the rationale and implementation of diet therapy and nutrition support in the prevention or treatment of acute diseases. Fall. 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. Wyler.

**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. Wyler.

**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 720 PUBLIC HEALTH NUTRITION MANAGEMENT I (2)**

*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. Summer. Sommers and Samuel-Hodge.

**NUTR 725 PUBLIC HEALTH NUTRITION MANAGEMENT II (3)**

*Prerequisite, NUTR 720.* An overview of the planning and management of local, state, federal, and voluntary public health nutrition programs. Examines legislative and administrative structures. Fall. Sommers.

**NUTR 728 NUTRITION TRANSLATIONAL RESEARCH AND APPLICATION (2)**

*Prerequisite, EPID 600, NUTR 725, and NUTR 813 recommended. Permission of instructor for non-majors.* Designed to focus on translational nutrition research and application, including grant writing, to prepare students in clinical, public health, and policy arenas. Spring. Mayer-Davis.

**NUTR 735 NATIONAL NUTRITION ISSUES (1)**

*Prerequisite, NUTR 725 or permission of the instructor.* Three-day in-depth seminar held in Washington, DC on national nutrition issues, policy formulation and program development with key congressional staff, federal agencies staff, and pertinent public interest/consumer advocacy groups. Paper required. Field fee required. Fall. Ng.

**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 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 801 ADV. NUTRITION INTERVENTION AND RESEARCH METHODS I (2)**

*Prerequisite, permission of instructor.* Fundamentals of nutrition intervention and policy research including conceptualization of research questions, hypothesis writing, and design of clinical and community trials. Applied focus on historical and innovative trials' design and implementation. Fall. Burger.

**NUTR 803 NUTRITION INTERVENTION ADVANCED RESEARCH SEMINAR (2).**

*Prerequisite, NUTR 801 and 802.* Development of critical thinking skills in the analysis of important nutrition and policy interventions. The course will examine conceptual models, research designs, intervention strategies, and measures of effectiveness. Course may be repeated once. Fall, Spring. Burger.

**NUTR 809 QUALITATIVE RESEARCH METHODS IN NUTRITION (2)**

*Prerequisite, permission of instructor.* Introduces students to qualitative research methods with an emphasis on their use in nutrition-related programmatic research, both locally and globally. Uses a combination of didactic, interactive, and applied techniques to teach qualitative research knowledge and skills. Students will work in teams to collect several types of qualitative data on a project that they design. Spring. Bentley and Flax.

**NUTR 810 PHYSICAL ACTIVITY EPIDEMIOLOGY AND PUBLIC HEALTH (3)**

*Prerequisite, EPID 600 or equivalent.* Course provides an overview of major issues in physical activity measurement, population distribution, correlates, impacts (physically and economically), and public health recommendations. Interventions, including relevant theories, will be reviewed. Spring. Ward and Hales.

**NUTR 811 DEVELOPMENT OF HEALTH PROMOTION AND DISEASE PREVENTION INTERVENTIONS (VAR. 1-3)**

*Prerequisite, permission of the instructor.* Understanding of the role and application of both theory and empirical data in the design and development of effective behavior change interventions, with particular focus on changing nutrition behaviors. Fall. Tate.

**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. Mendez and Albrecht.

**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.

**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. Coleman and Makowski.

**NUTR 861 ADV. NUTRITIONAL BIOCHEMISTRY: NUTRITION & IMMUNOLOGY (2)**

*Prerequisites, NUTR 600 and 620 or equivalent.* Presents an understanding of basic immunology and the role of nutrition in modifying the immune response. Fall, alternate years. Beck.

**NUTR 863 ADV. NUTRITIONAL BIOCHEMISTRY: MICROENVIRONMENTS: INFLAMMATION IN OBESITY, ATHEROSCLEROSIS AND CANCER (2)**

*Prerequisite, NUTR 600. Permission of the instructor for students lacking the prerequisite.* Will examine the interaction of cells in the microenvironment and recent advances in the role of metabolism and inflammation. Fall, alternate years. Makowski.

**NUTR 864 ADV. NUTRITIONAL BIOCHEMISTRY: OXIDATIVE STRESS AND NUTRITIONAL ANTIOXIDANTS IN HUMAN HEALTH AND DISEASE (2)**

*Prerequisite, BIOL 101, CHEM 102, NUTR 400 (or equivalent).* *Permission of the instructor for non-majors.* Provide basic information about the cellular and molecular mechanisms that are responsible for generation of reactive oxygen and nitrogen species, about key cellular structures targeted by these species, and about the role of oxidative stress and antioxidants in etiology and prevention of human diseases. Fall, alternate years. Styblo.

**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. Bennett and Voruganti.



**NUTR 867 ADV. NUTRITIONAL BIOCHEMISTRY: VITAMINS AND DISEASE (2)**

*Prerequisites, NUTR 600 and 620, or permission of the instructor.* An advanced graduate seminar course focusing on the molecular processes involving B and D-group vitamins, mechanisms of pathologies caused by their deficiency, as well as, the latest studies on the nutritional requirements, population consumption levels and use of the vitamins for treatment and prevention of human disease. Special emphasis will be given to the role of individual genetic polymorphisms in the specific vitamin status. Fall, alternate years. Krupenko, N.

**NUTR 868 NUTRIENTS AND DISEASE: BRAIN FUNCTION AND DEVELOPMENT (2)**

*Prerequisites, NUTR 600 and 620 or equivalent.* Seminar on nutrients that influence brain and neuron development and function. Spring, alternate years. Zeisel.

**NUTR 875 NUTRITION POLICY SEMINAR (1)**

*Prerequisite, permission of the instructor for undergraduates.* Graduate seminar addressing 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 good agricultural practices (GAP) certification. Fall. Ammerman.

**NUTR 880 ELEMENTS OF BEING A SCIENTIST (3)**

*Prerequisites, for doctoral students permitted by instructor/prepared with PHD aims/focus.* 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. Sheridan.

**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.

## APPENDIX E. Individual Development Plan for Doctoral Students

### UNC Doctoral Student Individual Development Plan

The student is to fill in the form and meet with the faculty advisor annually to review and discuss. This is an evolving form that will be updated at the start of each academic year.

The faculty advisor must sign off on the completed form by January 1<sup>st</sup> of each year and submit electronic copy to Joanne Lee.

As per <http://grants.nih.gov/grants/guide/notice-files/NOT-OD-14-113.html> all students must have an IDP.

Name: \_\_\_\_\_ Date: \_\_\_\_\_

Division: \_\_\_\_\_ Date of Grad. School Entry: \_\_\_\_\_

Date Comps taken/passed: \_\_\_\_\_ Date proposal defended/passed \_\_\_\_\_

#### Professional/Career Objective:

(e.g., position within Academia, Industry, Government, Other-specify):

1 <sup>st</sup> Choice		
2 <sup>nd</sup> Choice		

#### Mentor:

Please list your primary faculty advisor who will enhance the training experience by supporting your development in various skill sets.

Mentor	
Division	

#### Optional Secondary Mentor:

In cases where students are undertaking trans-disciplinary topics it is likely that students will have a secondary mentor, this section will be left blank if there is only one mentor

Mentor 2	
Division	

The IDP is meant to cover various areas of training. As each doctoral student will have a unique plan, these areas of training will be defined by the doctoral student in collaboration with mentor. Suggested areas of training are Research Activities, Research Productivity (i.e. publications, presentations, patents, etc.), Professional Development (e.g. professional associations, conferences/meetings, workshops, improvement of teaching methods, etc.) and Other (customized by doctoral student). The doctoral coursework is covered on an additional form that is held by the student services registrar. This IDP is for the big picture goals and development of the student.

The doctoral student and the mentor will assess the skill set of the doctoral student in each of these areas and then define short-term and long-term goals to address the skills to develop. In addition, the entire training period (up to 5 years) needs to be considered in the IDP as goals may have a particular sequence or necessary timeframe for success. These goals can be accounted for in the 5 Year Plan Overview section. Please note that the length of training may not be 5 years, thus use the number of years appropriate to the individual's situation. Mentor will guide the doctoral student in how to meet these goals to best achieve the desired career outcome.

At least annually, the doctoral student will meet with the mentor on an individual basis at least annually (and more likely regularly) to ensure that the goals are specific, realistic and being met in a timely manner. Goals will also need to be reassessed to address the particular needs of the individual and to reflect the changing nature of research and/or the doctoral student's career goals.

### **Training Skills Assessment:**

Please list the doctoral student's skill strengths and ones that require improvement in the doctoral student defined areas of training to help the individual reach the desired career objective. This portion is to be completed by the doctoral student and mentor. Alternatively, the doctoral student via correspondence with mentor can summarize the skills section.

	<i>Strong Skills (In Each Area of Training)</i>	<i>Skills to Develop (In Each Area of Training)</i>
<i>Self-Assessment of Skills</i>		

### **Achievement:**

Please attach a document that lists the following in each specific category. Please use the ICMJE Uniform Requirements for Manuscripts format for references:

- 1) Peer-reviewed journal publications
  - a. Published
  - b. In Press
  - c. Submitted
  - d. In Progress
- 2) Book Chapters or other scholarly products
  - a. Published
  - b. In Press
  - c. Submitted
  - d. In progress
- 3) Presentations at National/International meetings (where you were the first author)

### **Annual Plan:**

The doctoral student will work with mentor to create goals and specific action steps to address and gain the skills necessary for the anticipated career. This plan will be updated and revised each year, when the doctoral student will assess each goal: if it was met, still in progress or needs revision.

Suggested Areas of Training are: Research Activities, Research Productivity, Professional Development and Other. Departmental requirements such as teaching assistantship should be included as a goal with a plan for which courses interest the student.

<i>Goal 1 (Area of Training)</i>	<i>Action Step</i>	<i>Frequency (i.e. weekly)</i>	<i>Target Completion Date</i>

Date:                      \_\_\_ Met Goal                      \_\_\_ In Progress                      \_\_\_ Needs Revision

<i>Goal 2 (Area of Training)</i>	<i>Action Step</i>	<i>Frequency (i.e. weekly)</i>	<i>Target Completion Date</i>

Date:                      \_\_\_ Met Goal                      \_\_\_ In Progress                      \_\_\_ Needs Revision

<i>Goal 3 (Area of Training)</i>	<i>Action Step</i>	<i>Frequency (i.e. weekly)</i>	<i>Target Completion Date</i>

Date:                      \_\_\_ Met Goal                      \_\_\_ In Progress                      \_\_\_ Needs Revision

<i>Goal 4 (Area of Training)</i>	<i>Action Step</i>	<i>Frequency (i.e. weekly)</i>	<i>Target Completion Date</i>

Date:                   \_\_\_Met Goal                   \_\_\_ In Progress                   \_\_\_ Needs Revision

## 5 Year Plan Overview:

As an IDP is an overall plan for training at Nutrition, goals for every year in training is important to keep in mind to help doctoral students progress and build upon goals in successive years. In addition, certain goals for a career may need to be met on a timely basis. However, the length of training may not be 5 years for all, so use the number of years appropriate for the individual's training period.

Year 1 Goals
Year 2 Goals
Year 3 Goals
Year 4 Goals
Year 5 Goals

**MENTOR ELECTRONIC SIGNATURE:**

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## APPENDIX F. DOCTORAL STUDENT WORK POLICY

In unique circumstances, advanced doctoral students (2nd year and beyond) may have the opportunity to work on *substantial* research, program, or clinical projects outside of the dissertation research as an opportunity to obtain additional research experience. Substantial in this case means that it is sufficiently substantial to merit additional pay and effort. It is expected that such participation would expand the student's training experience and result in a scholarly product. The experience for pay needs to be clearly justified relative to a) the gain to the student towards meeting his/her career goals as reflected in the students' Individual Development Plan (IDP), and b) not delaying the dissertation research and preferably strongly supporting the dissertation development.

Such opportunities may involve payment above the NIH stipend, which necessitates Doctoral Committee approval. The primary goal of the approval phase is to determine whether or not the additional work involves scholarly activity that will further the training of the student and will not impede the students' progress toward the completion of dissertation research. A formal request must come from the student with the details of the work and the faculty advisor must sign to indicate their approval of the plan. Also, the request must provide evidence that the proposed work will not impede progress on the student's dissertation research.

- 1) A brief description of the proposed scholarly activity must be provided, along with the number of hours to be completed, as well as the amount of money that will be paid to the student. The anticipated time period of the activity should be included as well.
- 2) The student must provide a statement of how the proposed work relates to scholarly work in his/her area of research.
- 3) A brief plan must be provided that indicates how the work will be scheduled so as to not interfere with dissertation research.
- 4) A statement must be provided that indicates that the amount of work will not interfere with dissertation research.
- 5) A written statement from the dissertation advisor indicating that he/she approves of the proposed must be provided.

## **APPENDIX G. POLICY ON AUTHORSHIP FOR THESIS OR DISSERTATION COMMITTEE**

Serving on a thesis committee is, in itself, not sufficient reason for an individual to be listed as a coauthor on the student's publications. If however, the faculty member on the committee makes substantial intellectual or hands-on contributions to the student's work consistent with the uniform code of authorship described below, authorship is appropriate.

It is important that such co-authorship be discussed with the student and the thesis committee in a formal manner before work is done. In the absence of such a discussion and approval by the committee, the default understanding should be that the committee member will not be a coauthor on the student's papers.

The following points are from <http://PAREonline.net/getvn.asp?v=5&n=1> (retrieved June 7, 2008):

Syrett, Kristen L. & Rudner, Lawrence M. (1996). Authorship ethics. *Practical Assessment, Research & Evaluation*, 5(1).

Presented here is a summary of key ethical standards outlined in the "*Uniform Requirements for Manuscripts Submitted to Biomedical Journals*," developed by the International Committee of Medical Journal Editors. Adopted by over 500 scientific and biomedical journals, including the New England Journal of Medicine, Science, and Lancet, these ethical standards are effective guidelines for educational publications.

### **AUTHORSHIP**

All persons listed as authors must have made a substantial intellectual contribution to the overall study and accept public responsibility for it. In other words, the author must give input beyond general supervision or instruction of a research group, have a clear understanding of the methodology and implications of the work, and be able to defend the contribution against academic challenge.

Specifically, individuals identified as authors should have made significant contributions:

1. to the conception and design, or analysis and interpretation of data, or both;
2. to drafting of the manuscript or revising it critically for intellectual content; and
3. on final approval of the version of the manuscript to be published.

All three conditions must be met. Participation solely in the acquisition of funding or the collection of data does not merit authorship status.

In cases where more than one person meets the qualifications for authorship of a manuscript, the order of authorship should be a joint decision of the co-authors. The submission should be accompanied by a form stating that the manuscript has been read and approved by each of the co-authors. By signing this form, the authors verify that the manuscript represents honest work. The co-authors share responsibility and accountability for the results. Deceased persons who meet the criteria for inclusion should be listed, with a footnote reporting the date of death. No fictitious name should appear as an author.



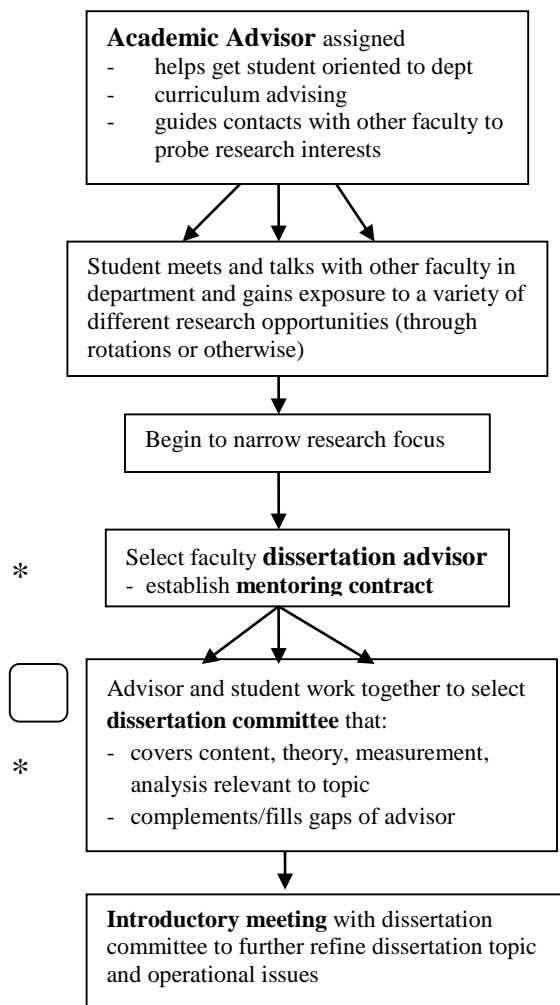
Multiple authors often result in complications. Chances for errors may be greater when the number of persons responsible for a submission is increased. Differences in roles and status compound the difficulties of according credit. Junior scholars may seek to gain automatic acceptance of their work by associating it with the name of an established scholar. This practice leads to an uncritical and inappropriate acceptance by other co-authors, the reviewers, or the readers.

## **ACKNOWLEDGMENTS**

Persons who made significant contributions to the work but did not justify authorship may be listed in the Acknowledgment section along with their function or contribution. Authors should be responsible for obtaining written permission from all persons being acknowledged by name. Technical help should be acknowledged in a separate paragraph from those acknowledging intellectual contributions.

Authors have an obligation to use journal space wisely and efficiently. Including extensive and repetitious lists of acknowledgments is not a good use of journal space and is of little value to the readers of a journal. Unlimited lists undermine the meaning of authorship and the value of an acknowledgment.

## Selecting a Dissertation Advisor/Topic/Committee



Key:

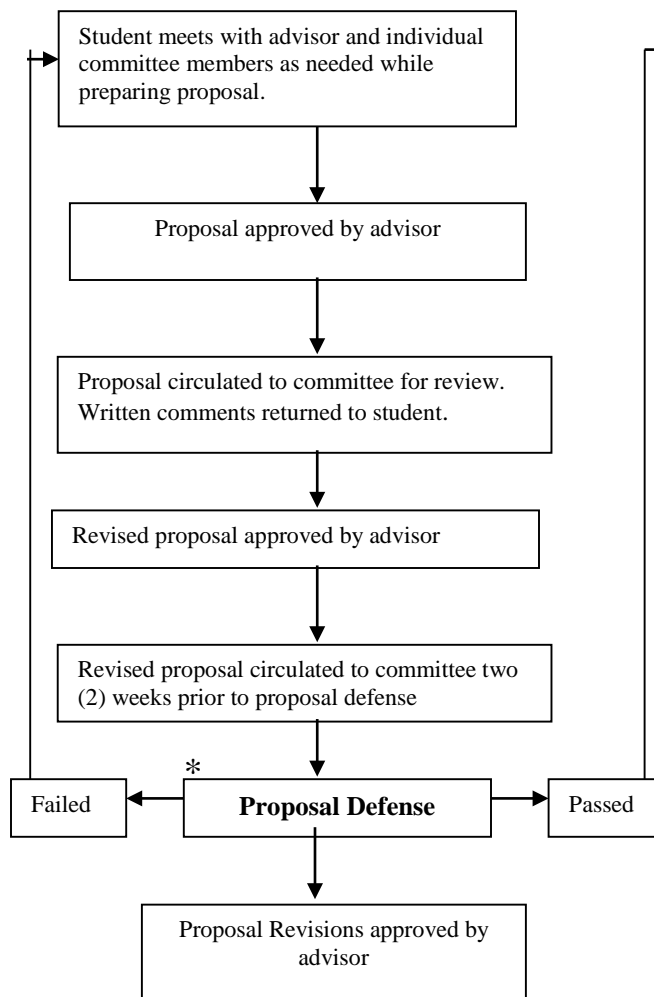


Target completion dates

\*

Form required

## The Dissertation Proposal



*Note: This represents a guide only. Individual faculty/student pairs may choose a different order or approach*

## The Dissertation Research and Defense

