

Handbook for the Doctoral Program in Nutrition

2018 ~ 2019

I. INTRODUCTION

A. Program Overview

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.

The Department of Nutrition is recognized as a global leader in research and training, and is unique in that it is the only nutrition department in the U.S. that is situated in both a school of public health and a school of medicine.

We engage in innovative and interdisciplinary approaches that encourage collaborations across disciplines and capitalize on both these schools' historical approaches to health; and thus our department has an unusual breadth of scientific and policy approaches, literally spanning from cell to society and moving from discovery to delivery. The work of our faculty and students is carried out throughout North Carolina and spans the globe to communities and populations in China, India, Malawi, Spain and The Philippines, to name a few.

We live in a time in which nutrition is a pivotal factor in changing the trajectory of public health around the globe. Critical public health issues—from food insecurity to obesity, cardiovascular disease, diabetes, and cancer—can be touched by nutrition research, from the cellular level to epidemiology, interventions and public policy. Our faculty train students in nutritional sciences, clinical nutrition, and public health to become global leaders in their fields. Our areas of focus are balanced by a commitment to research that improves the health of minority and underserved global populations. We continue to expand our reach and challenge ourselves to uphold our mission to improve health through nutrition in North Carolina and around the globe by giving our students a unique and purposeful experience and education that will translate into successful careers in academia, industry, government, and nongovernmental agencies.

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 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 personal statement which describes (1) a brief statement of what interest you most about the Nutrition doctoral program, (2) specific aspects of nutrition, and/or research questions addressed by the faculty that interest you, and (3) previous research or related job experience. Please identify specific research skills (data analysis computer, laboratory methods, survey development, etc.). Applicants with prior research experience should describe in detail their roles and responsibilities in these projects as it relates to the overall hypotheses tested, methods, results and conclusions. Applicants should include their career goals upon completion of graduate studies. **OPTIONAL:** Is there anything else not addressed in the questions above that you would like the committee to take into account as they consider your application? While there is no specific required length, most statements are longer than one page but do not exceed three pages.

We recommend that you submit your online COMPLETED application before **December 1, 2018**. Applications received prior to **December 11, 2018** will be eligible for consideration for [Graduate School Fellowships and Assistantships](#).

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, 2018 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 9, 2019**.

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. For more information, students should contact the department's Academic Coordinator.

1. **Department training grants.** The Department has two National Institutes of Health (NIH) grant for predoctoral training which helps support several students each year. One training grant focuses on transdisciplinary nutrition across the full scope of the department and the other focuses on global cardiometabolic disease. 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. 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, and Peggy Bentley.). 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/>

C. 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 until

the research advisor is identified. To facilitate student development, each entering PhD student and his or her mentor/advisor must set up a 3-person advisory committee (Committee of Three) to follow the student's progress through the first 3 years of doctoral studies, or until the dissertation committee is formed (whichever comes first).

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 in writing of their research advisor choice, and provide a signed statement from the advisor indicating willingness to serve in that capacity. 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 monthly with their academic or research advisor to review progress and plan future work. Once a research project is begun, 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 that they need to complete in addition to the annual Individual Development Plan (IDP). 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 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, 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 COURSE REQUIREMENTS

A. Programs of Study

In close consultation with their mentors and two additional Nutrition faculty member who comprise their Committee of Three, students will select a program of study within the first semester of their graduate studies. The Program of Study is based on student interests, background preparation, and career interests and goals. The individualized Program of Study must be approved by the Doctoral Committee and meet the requirements laid out in the student handbook. Some of the programs of study will be defined by methodology while others by content area. Many students will have multiple areas in which they work. Included below are examples of Programs of Studies for illustration. These samples are not intended to be prescriptive, but exemplary. They provide a basis for individualized programs of specialization to ensure appropriate depth according to students' areas of interests. Any of the sample programs of study can be, and often will be, augmented by various minor concentrations or certificate programs.

Translational and Biobehavioral Nutrition

For students interested in the intersection between basic laboratory research and evidence-based practice, the program of study in Translational and Biobehavioral Nutrition may include, but is not limited to research centered on converting basic nutrition knowledge into practical applications to improve human health, to increase the understanding of the development of nutrition-related diseases and disorders, and/or improving existing medical treatment regimes. This program of study can include coursework and other training to support a multitude of hypothesis-driven research associated with health outcomes. Areas of interest can include nutritional effects on vaccine responsiveness; ingestive behaviors relating to weight regulation; microbiome effects on behavior and weight regulation; the role of clinical nutrition as part of personalized nutrition for specific health conditions; the natural history of diabetes in youth and young adults; and bridging preclinical (cell and/or animal models) with clinical trials or epidemiologic studies. Students may wish to consider an extension beyond the PhD program to include training to become a registered dietician. Graduates with these interests may go on to conduct research in academic or other settings including industry, government or research institutes, or health care systems. This area of study typically includes completion of the Translational Medicine Certificate: <http://www.med.unc.edu/transmed>. Minors in Health Behavior are also available.

Community or Behavioral Interventions

For students interested in community-based or individual level behavioral interventions, including multi-component interventions, the program of study will have a strong emphasis on theory-based interventions at the individual, community, or environmental levels to improve health and nutrition outcomes. This includes interventions related to diet, physical activity, and behavior change for the prevention or treatment of chronic diseases. Training in both qualitative and quantitative methods provides students with the skills to develop and evaluate programs. Graduates with these interests conduct intervention and evaluation research in academic settings and other settings such as state and federal governments, industry, and public health administration. Courses of study include training in both general intervention methods and specific nutrition intervention content. A minor in Health Behavior is available.

Global Nutrition

For students interested in global nutrition, the program of study will focus on global health, including

issues such as health disparities, maternal and child health around the world, food insecurity, obesity or other nutrition-related non-communicable diseases, and strategies for creating a healthy global food system and food environment. Students interested in global nutrition may also complete formal requirements for the UNC Department of Epidemiology minor but could equally create specializations related to global nutrition policy or interventions. Training prepares doctoral students in rigorous and innovative methods for work in academic and other settings including governmental and non-governmental organizations. Students may develop a specialization in global nutrition by taking International Nutrition (NUTR 745) and may choose from a wide variety of global health courses offered in other departments. For a comprehensive listing of UNC global health-focused courses, see <http://sph.unc.edu/global-health/residential-certificate-in-global-health-courses/>.

Nutritional Metabolism and Nutrigenomics

For students interested in the basic science of nutrition, the program of study would focus on mechanisms of nutrient action in human health and disease from a biochemical, cellular and/or molecular perspective. Ongoing research focuses on epigenetics; nutrigenetics; oxidants and antioxidant; growth factors; adipocyte biology; lipid metabolism; cellular physiology and signaling; nutritional influences on brain development; genetics of obesity and exercise; nutritional influences on immune function; and the molecular biology of nutrient-related diseases like obesity, diabetes, atherosclerosis and cancer. Graduates of our department with these interests are currently research scientists and professors at universities and scientists in government and industry research laboratories. In addition to courses in the Department of Nutrition, students in this area frequently take courses in other basic science departments. The Department of Nutrition is part of the Biological and Biomedical Sciences Program (BBSP) and therefore students can take advantage of their services as well, <http://bbsp.unc.edu/>

Nutrition Epidemiology

For students interested in epidemiology and population health, the program of study would focus on determining the contribution (protective and detrimental) of diet- or obesity-related factors to the development of diseases, analyzing the role of nutrition and obesity in growth and development, understanding the determinants and consequences of nutrition-related trends, and trying to intervene at the population level to change diets and/or reduce obesity and/or nutrition-related other diseases. Relevant areas of research may include genetic epidemiology and interactions of food and genetic factors, microbiome and metabolomics studies, environmental and chemical exposures as they relate to diet and diet-related health consequences. Work in this area often includes sophisticated analytical methods to investigate nutrition-related exposures and outcomes. Students will typically complete formal requirements for the UNC Department of Epidemiology minor. Upon graduation, students with these skills conduct epidemiological research related to nutrition in academic, research, and government centers at the national and international level. Epidemiology Minor: <http://sph.unc.edu/epid/epid-minoring-in-epidemiology/>

Nutrition Policy

For students interested in policy, the program of study would have emphasis on basic principles of nutrition and health policy, including potential topics such as influences on national dietary intake data, impact of taxation on unhealthy food purchase and consumption, and food security and sustainable food systems. Students in this area must have methodological expertise in one analytic area such as nutrition epidemiology, health economics, economics, sociometrics, psychometrics or measurement and analysis related to one of several methodological subspecialties related to health behavior. Graduates with these interests conduct research in academic settings and advise policy makers in state and federal governments, industry, and public health administration. A number of nutrition policy courses are available to the student including NUTR 696 Global Food Policy to Prevent Obesity, NUTR 805

Nutrition Policy, , HPM 611 Public Health Concepts in a Systems Context, HPM 715 Health Economics for Policy and Management, PLCY 882 & HPM 882 Advanced Panel Data Methodology for Public Policy/Health Policy Management

B. Coursework and Research Requirements

Normally, students should plan to meet all of their core and specialization course requirements during the first two and half years of graduate study. Some students may wish to complete the majority of their 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 to three 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 the Academic Coordinator to determine what sequence of courses will best meet their needs.

Core Requirements (School of Public Health and Department of Nutrition Core): 26-27 credit hours

The following are required for all PhD students in the Department of Nutrition

- EPID 600 Principles of Epidemiology (3 credits)**
OR*
EPID 710 Fundamentals of Epidemiology (for Epidemiology minors) (4 credits)
SPHG 600 Introduction to Public Health (3 credits)
*students may take EPID 600 or EPID 710

Department of Nutrition Core Courses

- NUTR 600 Human Metabolism: Macronutrients (3 credits)**
NUTR 620 Human Metabolism: Micronutrients (3 credits)
NUTR 885 Doctoral Seminar (1 credit/semester, 4 semesters total)
NUTR 670 Nutrition and Health Behavior (3 credits)

NUTR 880 Elements of Being a Scientist (3 credits).

Choose one of the following 4 Biostatistics Courses:

- BIOS 545 Principles of Experimental Analysis (3 credits) OR**
BIOS 600 Principles of Statistical Inference (3 credits) OR
BIOS 610 Biostatistics for Laboratory Scientists (3 credits) OR
BBSP 610 Biostatistics for Laboratory Sciences (3 credits)
NUTR 785 Graduate Teaching Experience (1 credit)

Specialization Requirements (minimum of 25 credit hours)

Specialization Course Requirement (minimum of 9 credit hours)

Student must define a speciality area and, along with their advisor, select courses to develop depth within the chosen area of specialization

Specialization Research Skills (minimum of 16 credit hours)

Students are also required to develop research skills within their speciality area by engaging in their mentor's ongoing research program and/or taking additional coursework to gain research skills

NOTE: Included within the 25 credits of specialization training, all students must enroll in NUTR 910: Nutrition Research (3 credit minimum/semester) the first 2 years of their PhD

training. Following proposal defense, students enroll each semester in NUTR 994: Dissertation.

Courses in BOLD are required prior to taking the Comprehensive Exam.

TOTAL CREDITS REQUIRED FOR GRADUATION: 26 (Core) + 9 (Specialization courses) + 16 (Research skill development and additional specialization work) = 51 credits. Note this is minimal credit requirement. Programs of study often exceed 60 credit hours.

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 required 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 NUTR 885 Course Instructors will be responsible for providing the CITI and RCR training certification of completion to the department Academic Coordinator.

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

Doctoral students participate in NUTR 880 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 Academic Coordinator.

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

B. Doctoral Comprehensive Examination

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 nutrition as it relates to metabolism, epidemiology, policies and interventions, as well as deeper knowledge in the student’s chosen area of training. Along with Core course requirements and the student’s specialization coursework, the comprehensive exam is designed to test competency and critical thinking skills in all of these

areas. The comprehensive exam contains two sections: 1) Integrative and 2) Specialization

Integrative Section

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 the Comprehensive Exam Committee (see description below). 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.

Specialization Section

The specialization exam consists of a 3 hour closed book written examination followed several days later by an oral exam. For the specialization exam, the student's Committee of Three, without the advisor, will be responsible for administering the specialization exam, designed to test knowledge and critical thinking skills in the student's chosen program of study. For the purpose of administering the specialization exam, the student's advisor will be permitted to contribute to exam development, but not administer or grade the exam. 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 specialization exam is based on both the written and oral examinations. A student who fails the specialization 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.

Comprehensive Exam Committee

There will be a Comprehensive Exam Committee comprised of 3-4 individuals across affinity areas. These individuals will be asked to serve a 2-year term. The Comprehensive Exam Committee will be responsible for:

- Reviewing the pool of students taking comprehensive exams and identify students who may be able to take the same or a similar interest-specific exam vs. those who require individualized exams.
- Coordinating exam-writers from the students' Committee of Three for the interest-specific exam and providing accountability for content and timing. In the event that there are

multiple students who can take the same interest-specific exam, the committee will solicit three volunteers across each student's Committee of Three to write the exam.

- Reviewing rigor across all exams.
- Developing, administering, and grading the integrative exam.

A student must pass the specialization 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, NUTR 670, EPI 600 or EPI 710, BIOS 545 or 600 or 610, and 4 semesters of NUTR 885. In addition, any classes related to their specific program of study must be taken and passed prior to taking the comprehensive exam. 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. It is the students' responsibility to seek clarification on the timing, dates, and locations of these exams and to be available for all components, including the oral exams. If a student wishes to travel during the exam period, they must discuss this with the doctoral committee chair (not the student's advisor).

- Day 1: Specialization written exam (3 hours, closed book)
- 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: Specialization 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, for example in Epidemiology, must have a faculty member from the department providing the Minor 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. 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 Academic Coordinator and obtain required approvals and signatures. The Academic Coordinator 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 Academic Coordinator 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 Academic Coordinator 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 E) 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 private dissertation defense and public 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

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. After satisfactory completion of the 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. 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 Academic Coordinator.

C. Changes to the Dissertation Proposal

After satisfactorily defending the proposal defense, students may begin dissertation research and only register for NUTR 994 Doctoral Dissertation at 3-credits. 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 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 Academic Coordinator and copying the doctoral committee chair AND all three primary faculty dissertation committee members describing the need for such a change. These requests will be reviewed by the PhD Committee. The change to the dissertation committee must also be approved by the Graduate School. Such changes should not occur close to the time of the final dissertation defense as the role of the committee is to guide the student's dissertation research, although exceptions may occur in the event that a committee member leaves the university.

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 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.

PhD Student Defense Guidelines

- **The student should ensure their dissertation committee members receive a copy of their dissertation final draft at least one month prior to their proposed date of defense to ensure enough time is given for proper review.**
- **It is the student's responsibility to schedule the dissertation defense and notify the Academic Coordinator at least 2 weeks prior to the defense date so that it may be advertised appropriately within the department.** Students must work around the scheduling of required nutrition courses to avoid scheduling conflicts with the public presentation. Students should include the title of their dissertation, time, date, and location of the defense, the abstract, and a list of their committee members via email to the Academic Coordinator in this notification.

At the dissertation presentation, the student presents a 40-50 minute seminar with a 10-20 minute question and answer session to discuss the methods, results and significance of the dissertation research. This will constitute the final dissertation defense. All committee members must sign the final dissertation form, which should be picked up from the Academic Coordinator prior to your presentation. 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* (<http://gradschool.unc.edu/academics/thesis-diss/>). 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 electronically to the Graduate School according to the schedule in the University Registrar's Calendar.

IX. MONITORING STUDENT PROGRESS

In order to provide important support of the student-advisor relationship and to insure that all doctoral students are adequately prepared to advance in the program, all doctoral students will have a Committee of Three established early in each student's first semester in the program. Details are described below,

which includes a checklist to guide the discussion of the meetings held with students. Early in their first year, students should discuss with their primary advisor the formation of the **Committee of Three, which consists of: the advisor and two additional faculty members except those who are members of the research lab of the primary advisor.**

The purpose of the committee is to review the Program of Study for the student in terms of coursework, research, and the advisor-student relationship. The committee will meet each year until the formation of the dissertation committee at which point the Committee of Three will disband or become part of the dissertation committee. **This meeting will occur at the end of the 2nd semester after grades are posted in the period of May-June, with the meeting held in conjunction with the IDP meeting. The attached document and the IDP will both be due by June 30 of each year. The committee may meet more frequently, as needed.**

Each of the Committee of Three meetings can be brief and will include the following minimal structure: 1) a few minutes of discussion for the Committee of Three; 2) a few minutes of discussion with the student and all members of the committee; and 3) a few minutes of discussion with the two-faculty committee members and the student without the student's advisor. Of course, additional time may be needed if there is reason for such a discussion.

PhD Student: Committee of Three Guidelines

Each entering PhD student and his or her mentor/advisor must set up a 3-person advisory committee to follow the student's progress through the first 3 years of doctoral studies, or before the dissertation committee is formed (whichever comes first). At each annual meeting, the Committee of Three will assess whether the student is progressing well in coursework, research, and student-advisor relationship. Concerns should be documented in writing in order to retain the "memory" of the committee as something to keep an eye on. If a serious concern exists, the committee could meet more often, introduce a mediator, and/or suggest another mentor. If student's progress or mentor's involvement is not satisfactory, the student will be presented with defined milestones and benchmarks to be clearly met to mark progress.

Please complete the standard PhD Advisory Committee form for each meeting (Appendix D). The primary advisor should distribute comments to PHD Committee and Academic Coordinator through email as an electronic record.

Students, their committee members, and the Academic Coordinator should use the checklist to help monitor progress toward meeting requirements. The primary mechanism for monitoring student progress within the Nutrition Department is through an Individual Development Plan (IDP) for all doctoral students (Appendix E). Each student will complete an IDP online through <http://myidp.sciencecareers.org/>, 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.

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 online, and then, your IDP will be forwarded electronically to your dissertation advisor for feedback. Between May 1st and May 31st, 2018, each student will meet with their dissertation advisor (and co-advisor if the student has a co-advisor) 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 May-June. 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 doctoral committee 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 E.

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.
- Courses applied to the minor must be exclusive of courses applied toward the degree.
- 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 85th 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) or 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 AND COMPETENCIES

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 and competencies.

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 a student's program of study.

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.

2. PHD Competencies in Nutrition

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

- Demonstrate knowledge of nutritional biochemistry and biological mechanisms underlying the relationships between nutrients and health.
- Demonstrate competence in fundamentals of public health, including biostatistics, epidemiology, nutrition behavior and policy and how this content is used in research.
- Demonstrate specialized knowledge in selected research competency areas.
- Exhibit effective teaching and presentation skills.
- Demonstrate mastery of research methodology, explain historical and theoretical aspects of the research topic, contribute new knowledge and successfully accomplish the goals and objectives in the dissertation proposal.

APPENDIX C. COURSE DESCRIPTIONS FOR 2018 – 2019

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

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

NUTR 240 INTRODUCTION TO HUMAN NUTRITION (3)

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

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

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

NUTR 295 UNDERGRADUATE RESEARCH EXPERIENCE IN NUTRITION (3)

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

NUTR 400 INTRODUCTION TO NUTRITIONAL BIOCHEMISTRY (3)

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

NUTR 600 HUMAN METABOLISM: MACRONUTRIENTS (3)

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

NUTR 611 NUTRITION ACROSS THE LIFE CYCLE (3)

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

NUTR 620 HUMAN METABOLISM: MICRONUTRIENTS (3)

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

NUTR 630 NUTRITION COMMUNICATION, COUNSELING AND CULTURE (3)

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

NUTR 640 MEDICAL NUTRITION THERAPY(4)

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

NUTR 650 FOOD SCIENCE AND CULINARY ARTS (2)

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

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

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

NUTR 670 NUTRITION AND HEALTH BEHAVIOR (3)

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

NUTR 692H HONORS RESEARCH IN NUTRITION (3)

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

NUTR 695 NUTRITION RESEARCH (VAR. 1-9)

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

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

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

NUTR 700 NUTRITION IN MEDICINE (2)

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

NUTR 723 PUBLIC HEALTH NUTRITION MANAGEMENT 3)

Prerequisites, NUTR 630 and 640, HBEH 600. Focuses on the roles and functions of the public health nutritionist in providing nutrition services at the community level that includes domestic and international nutrition programs, essential public health services, community assessment methods, and community engagement. For the MPH-RD student, it includes the 336 hours of field experience. Fall. Gallagher and Martin

NUTR 745 INTERNATIONAL NUTRITION (3)

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

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

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

NUTR 785 GRADUATE TEACHING EXPERIENCE (1)

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

NUTR 805 NUTRITION POLICY (3)

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

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

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

NUTR 813 NUTRITIONAL EPIDEMIOLOGY (3)

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

NUTR 814 OBESITY EPIDEMIOLOGY (3)

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

NUTR 818 ANALYTICAL METHODS IN NUTRITIONAL EPIDEMIOLOGY (3)

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

NUTR 845 NUTRITIONAL METABOLISM (3)

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

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

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

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

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

NUTR 880 ELEMENTS OF BEING A SCIENTIST (3)

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

NUTR 885 DOCTORAL SEMINAR (1)

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

NUTR 910 NUTRITION RESEARCH (VAR. 1-9)

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

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

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

NUTR 992 MASTER'S PAPER (3)

Fall, spring, and summer. Faculty.

NUTR 993 MASTER'S THESIS (3)

Fall, spring, and summer. Faculty.

NUTR 994 DOCTORAL DISSERTATION (3)

Fall, spring, and summer. Faculty.

APPENDIX D. PhD Committee of Three Meeting Guidelines and Report Form

Date of Meeting: _____

Student: _____

Circle: Year of PhD training: 1 2 3 4

The Student should lead discussion & answer questions with the primary advisor commenting only as necessary:

- 1) Discuss classes taken, grades, and plans of what to take during the first two years? Yes/No

- 2) Discuss scientific research progress to date and plans for projects? Yes/No

- 3) Discuss publication plans (first/middle author and reviews)? Yes/No

- 4) Plan for next 3-person committee meeting- choose month/year for next meeting. Yes/No

- 5) Have the primary advisor step out of the room, so that the student can make confidential comments.

- 6) Have the student step out of the room, so that the primary advisor can make confidential comments.

Please add questions, concerns, and comments below:

Signatures of Student & Committee Members Present:

Student: _____

Primary Advisor: _____

Member 1: _____

Member 2: _____

APPENDIX E. Individual Development Plan for Doctoral Students

UNC Doctoral Student Individual Development Plan

The student may use this form or complete an IDP online through <http://myidp.sciencecareers.org/> 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 June 1st of each year and submit electronic copy to Academic Coordinator.

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

Name: _____

Date: _____

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):

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

Mentor:

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

<i>Mentor</i>	

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

<i>Mentor 2</i>	

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:

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 formal approval from the student's Committee of Three or Dissertation Committee. 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. Students may obtain this formal request form from the Academic Coordinator.

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.