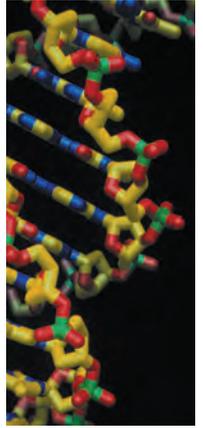
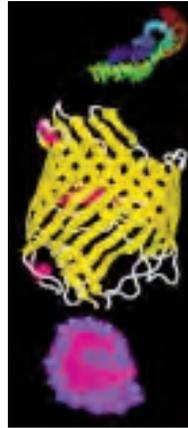


# 2013-2014 H A N D B O O K

## Department of Nutrition



*School of Public Health*

*School of Medicine*

*University of North Carolina  
at Chapel Hill*



Doctor of Philosophy • Doctor of Public Health

## ***TABLE OF CONTENTS***

	Page
I. Introduction	1
A. Program Overview and Divisions	1
B. Admission Requirements	2
C. Residence Credit Requirement	2
D. In-State Residence Status	3
II. Financial Support	3
A. The Nutrition Department	3
B. The Gillings School of Global Public Health	3
C. The Graduate School	3
D. The University	4
E. Examples of Other Funding	4
III. The Faculty Advisor	4
A. Assignment of Advisor	4
B. Student/Doctoral Advisor Relationship	5
C. Changing the Research Advisor	5
IV. Nutrition Department Divisions and Course Requirements	6
A. Core Competencies	6
B. Research Methods Requirements	7
C. Additional Division-specific Requirements	8
D. Timing of Activities to Meet Requirements	9
V. Other Department Requirements	10
A. Teaching Experience	10
B. Doctoral Comprehensive Examination	10
VI. Selection of the Dissertation Committee	12
A. Composition	12
B. Functions	12

VII.	The Dissertation Proposal and Dissertation Proposal Defense	13
A.	Dissertation Proposal	13
B.	Dissertation Proposal Defense	13
VIII.	Final Dissertation Defense and Application for Degree	14
A.	The Dissertation	14
B.	Format of the Dissertation	14
C.	Dissertation Defense and Seminar	15
D.	Application for Degree	15
E.	Time Limitation	16
IX.	Monitoring Student Progress	16
X.	Appendices	17
Appendix A.	Minors	17
Appendix B.	Learning Objectives	19
Appendix C.	Checklist of Course Requirements for the Doctoral Degree	20
Appendix D.	Course Descriptions	21
Appendix E.	End-of-Year Progress Report	27
Appendix F.	Policy on Authorship for Thesis or Dissertation Committee	28
Appendix G.	A Guide to the Dissertation Process	30

# Handbook for the Doctoral Program in Nutrition

## 2013 ~ 2014

### I. INTRODUCTION

#### A. Program Overview and Divisions

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

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

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

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

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

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

## B. Admission Requirements

Applicants must hold an appropriate baccalaureate degree from a four-year college or university, or its international equivalent with a 3.0 GPA or better. Applicants must have completed coursework in the following areas: **organic chemistry, anatomy/physiology, biochemistry, and human nutrition**. Individuals with advanced degrees (such as a Master's degree, M.D., D.D.S. or equivalent professional degree) are also encouraged to apply. Applicants who wish to study nutritional biochemistry should have relevant laboratory experience. For the Nutrition Intervention and Policy Division, preference is given to applicants with experience in intervention and/or policy applications or research. Due to the competing demands of internship and research hours, admission to the doctoral program concurrent with enrollment in the MPH-RD program within the UNC Department of Nutrition is allowable only under special permission from the doctoral committee and the proposed advisor.

Applicants are required to submit Graduate Record Examination (GRE) scores. Physicians and dentists may submit Medical or Dental Aptitude Test scores in lieu of GRE scores. All international applicants — except those from countries where English is the SOLE OFFICIAL language of instruction (Australia, Bahamas, Barbados, Canada — except Quebec, England, Ghana, Ireland, India, Jamaica, Kenya, New Zealand, Nigeria, Scotland, St. Vincent and the Grenadines, Trinidad, Tobago, Uganda and Wales) OR those who have received or will receive a degree from a university in the United States — must submit an acceptable, official (reported directly from ETS) Test of English as a Foreign Language (TOEFL) score. If you are currently enrolled at a U.S. institution, you must submit an official transcript or verification of degree candidate status from that institution to qualify for a TOEFL waiver. If the degree or an official verification is not received, the TOEFL score will again be required. The minimum score accepted by the Department of Nutrition is 577 for the paper-based total and 90-91 for the internet-based total. Applicants should submit a two-page personal statement which describes (1) specific aspects of nutrition that interest them and the names of faculty members with whom they might like to work, and (2) previous research or job experience. Applicants should also identify specific research skills (data analysis, laboratory methods, survey development, etc.) they have acquired. Those applicants with prior research experience should describe in detail their research projects, including hypotheses tested, methods, results and conclusions. Applicants should also include (3) their career goals after completing graduate studies; and (4) any additional information they would like the committee to have. A description of the required content of the personal statement will be sent to all individuals who request application materials.

We recommend that you submit your online COMPLETED application before **December 1<sup>st</sup>**. 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<sup>st</sup> 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 14<sup>th</sup>**.

Applications received before December 17<sup>th</sup> will be eligible for consideration for Graduate School fellowships and assistantships ([http://gradschool.unc.edu/fellowships\\_and\\_funding/index.html](http://gradschool.unc.edu/fellowships_and_funding/index.html)).

## C. Residence Credit Requirement

UNC requires a minimum of four semesters of "residence credit", at least two of which must be earned in contiguous registration of at least six-credit hours on this campus. Registration for nine or more credit hours in a semester is considered full-time and earns a full semester of residence. Six to eight credit hours earn one-half semester of residence and three to five hours earn one-fourth semester of residence. Credits earned in any summer session count toward the residency requirement on the

same basis as courses taken during regular semesters. In addition, the Department requires that a minimum of 12-months must lapse between defense of the dissertation proposal and the final defense of the dissertation. The majority of students in the program take four to five calendar years to complete a doctoral degree. The time required varies depending on whether students enter after completion of the bachelor's or master's degree, and on the nature of the research project selected by the student. A minimum of 30-credit hours must be earned in order to graduate.

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

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

<http://gradschool.unc.edu/student/residency/>

## **II. FINANCIAL SUPPORT**

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

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

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

1. **Department training grants.** The Department has two National Institutes of Health (NIH) grants for predoctoral training and one for postdoctoral training. Grants provide tuition and fees (up to 60%), a stipend, and health insurance. These NIH traineeships, open only to U.S. citizens or permanent residents, are awarded on a competitive basis and require sponsorship by a faculty member.
2. **Faculty research grants.** Department faculty members direct a large number of intervention and policy, epidemiological population-based, and biochemistry grants from the NIH and other funding agencies.

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

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

#### **C. The Graduate School**

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

## **D. The University**

Students may apply for financial assistance from the Office of Scholarships and Student Aid. The Grant Source Library offers a free computerized search service to UNC graduate students. The database includes private and public sources of research funding that can be searched by the student's area of research interest or by discipline of investigator. Some agencies provide training support only, some dissertation support only and some both training and dissertation support. Students should be aware that the deadline for applying for many of these grants might precede the funding date by as long as a year. See website at:

[http://research.unc.edu/grantsource/finding\\_funding.php](http://research.unc.edu/grantsource/finding_funding.php)

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

1. **The Agency for Health Care Quality (AHRQ)** supports dissertation research in the area of health service delivery. Applications may be obtained from Chief, Review and Advisory Services (Dissertations), NCHSR, Parklawn Building, 5600 Fishers Lane, Room 18A-20, Rockville, MD 20857, (301) 443-3091.
2. Students working in the area of reproductive health or nutrition and population may be eligible for traineeships from the **Carolina Population Center**. Faculty sponsorship is necessary (see Drs. Barry Popkin, Linda Adair, Penny Gordon-Larsen, Peggy Bentley, Michelle Mendez, and Anna Maria Siega-Riz). 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/>

## **III. THE FACULTY ADVISOR**

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

It is typical that at the time of admission to the doctoral program, most students have identified the faculty member with whom they will conduct their dissertation research; that faculty member will be assigned as the student's research advisor. When uncertainty exists as to the research advisor, a

temporary academic advisor will be assigned to help the student select courses during the first year. This does not represent assignment of the research advisor.

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

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

Student/faculty communication is a mutual responsibility. The advisor serves as the major source of guidance until the dissertation committee has been chosen. During the year(s) when students are involved primarily in course work, they should meet at least once per semester with their academic or research advisor to review progress and plan future work. Once a research advisor is chosen, students should meet with advisors at least once per month. To assist in reviewing progress, students and advisors will be provided with a checklist of plans and requirements. The checklist should be regularly updated and reviewed with the advisor. The Doctoral Committee will review the progress of all doctoral students annually and apprise faculty advisers and division directors of any problems. See Section IX for information on the monitoring of student progress.

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

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

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

If a research mentor leaves the University or becomes deceased, the student will be offered the opportunity to work with another faculty member but without a guarantee of continuing the original

research topic area. If the loss of the research advisor occurred following the first two years of PhD training, funding is not guaranteed.

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

##### **A. Core Competencies**

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

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

##### School of Public Health Core Courses

- SPHG 600 Introduction to Public Health (3 credits)
- BIOS 600 Principles of Statistical Inference (3 credits)
- EPID 600 Principles of Epidemiology (3 credits)
- OR\***
- EPID 710 Fundamentals of Epidemiology (for Epidemiology minors) (4 credits)
- HBEH 600 Social and Behavioral Sciences in Public Health (3 credits)

\*students may take EPID 600 or EPID 710

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

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

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

##### *Nutritional Biochemistry Students:*

- NUTR 600 Human Metabolism: Macronutrients (3 credits)
- NUTR 620 Human Metabolism: Micronutrients (3 credits)
- NUTR 845 Nutrition Metabolism (3 credits)
- OR** Prior coursework/experience deemed adequate

*Nutrition Epidemiology Students:*

NUTR 600	Human Metabolism: Macronutrients (3 credits)
NUTR 620	Human Metabolism: Micronutrients (3 credits)
NUTR 813	Nutritional Epidemiology (3 credits)
<b>OR</b>	Prior coursework/experience deemed adequate

*Nutrition Intervention and Policy Students:*

NUTR 600	Human Metabolism: Macronutrients (3 credits)
NUTR 620	Human Metabolism: Micronutrients (3 credits)
NUTR 801	Advanced Nutrition Intervention and Research Methods I (2 credits)
NUTR 802	Advanced Nutrition Intervention and Research Methods II (2 credits)
NUTR 803	Nutrition Intervention Advanced Research Seminar (2 credits)
NUTR 809	Applied Qualitative Research Methods (2 credits)
NUTR 811	Development of HPDP Interventions (3 credits)
NUTR 813	Nutritional Epidemiology (3 credits)
<b>OR</b>	Prior coursework/experience deemed adequate

**NUTR 885 Doctoral Seminar** (1 credit/semester), also a core requirement, contributes to the development of research methods competencies. Doctoral students must participate in the Doctoral Seminar for the first two years of the doctoral program. After the exam, all doctoral students are encouraged to continue to participate. The seminar serves as a forum for discussion of current and controversial topics appearing in the nutrition literature. It is also a forum for regular interaction among doctoral students and faculty. The topics covered and the development of critical thinking skills through discussions will help students to prepare for the doctoral comprehensive exam, and for the continued reading of the scientific literature required of any scholar. In addition to the Doctoral Seminar, doctoral students should attend all regularly scheduled departmental seminars.

## **B. Research Methods Requirements**

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

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

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

Required Courses:

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

**C. Additional Division-specific Requirements**

**Nutritional Biochemistry**

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

- |           |  |
|-----------|--|
| NUTR 845* | Nutritional Metabolism   |
| CBIO 643  | Cell Biology I   |
| NUTR 851  | Advanced Nutritional Biochemistry: Obesity and Body Weight Regulation  |
| NUTR 861  | Advanced Nutrition Biochemistry: Nutrition and Immunology  |
| NUTR 862  | Advanced Nutritional Biochemistry: Epigenetic in Nutrition   |
| NUTR 863  | Advanced Nutritional Biochemistry: Microenvironments: Inflammation in Obesity, Atherosclerosis and Cancer    |
| NUTR 864  | Advanced Nutritional Biochemistry: Oxidative Stress and Nutritional Antioxidants in Human Health and Disease |
| NUTR 868  | Nutrients and Disease: Brain Function and Development  |
| HBEH 600* | Social and Behavioral Sciences in Public Health  |

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

**Nutrition Epidemiology**

Students in nutritional epidemiology are required to take NUTR 813, NUTR 818 and obtain a formal minor in Epidemiology. The Epidemiology minor requires a total of 15-credit hours including EPID 710 (4-credits), EPID 715 (4-credits) and EPID 716 (2-credits), with the remaining credit hours in any substantive epidemiology courses from the list below. Other options must be approved by the Division Director. All students must pass a statistical package proficiency exam in order to enroll in the Epidemiology classes. This exam is generally given in the summer prior to the start of classes (e.g., in the 2013-2014 academic year a proficiency exam in SAS was due in early August 2013).

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

NUTR 813*	Nutritional Epidemiology
NUTR 814	Obesity Epidemiology
NUTR 818	Analytical Methods in Nutritional Epidemiology
EPID 743	Genetic Epidemiology: Methods and Application
EPID 851	Reproductive and Perinatal Epidemiology
HBEH 600*	Social and Behavioral Sciences in Public Health

\* Must be completed prior to comprehensive examination

### **Nutrition Intervention and Policy**

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

NUTR 801*	Advanced Nutrition Intervention and Research Methods I
NUTR 802*	Advanced Nutrition Intervention and Research Methods II
NUTR 803*	Nutrition Intervention Research Advanced Seminar (2 semesters)
NUTR 809*	Applied Qualitative Research Methods
NUTR 811*	Development of Health Promotion and Disease Prevention Interventions (cross-listed with HEBH 811)
NUTR 813*	Nutritional Epidemiology
HBEH 600*	Social and Behavioral Sciences in Public Health

One additional upper level biostatistics or analytic course.

\* Must be completed prior to comprehensive examination.

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

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

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

## **V. OTHER DEPARTMENT REQUIREMENTS**

### **A. Teaching Experience**

Each student will gain teaching experience by working with a nutrition faculty member to teach components of a 3-credit hour nutrition course or equivalent course. This involves: 1) preparing and giving two lectures, (2) preparing the reading list for these two lectures, (3) attending some of the course lectures, and (4) evaluating students with the course instructor. The course instructor will give teaching students a written evaluation of their work in the course and send a copy to the student services manager. All students will be required to register for NUTR 875 (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 (formerly The Center for Teaching and Learning, telephone 966-1289) offers help for students who desire additional instruction on teaching. CFE also offers during orientation each fall various workshops on leading discussions, making up exams, grading, slides, etc.

<http://cfe.unc.edu>

### **B. Doctoral Comprehensive Examination**

#### **Philosophy**

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

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

The *integrative* exam is written and evaluated by a committee that includes at least one faculty member from each division. It is an open book, take-home examination with a prescribed word limit. Students will have 3 days to complete the exam. Students may use library resources, and the exam will test their ability to integrate and interpret information from multiple relevant sources. If the exam committee judges that any portion of essay is inadequate for a passing grade, the student will be given feedback and an opportunity to re-write all or specified parts of the exam within an assigned time period. The exam committee will provide specific guidance on the extent of revisions required. If, after revision, the exam is still inadequate for a passing grade, the student must retake the examination

the next time it is offered (typically in the following school year). A student who fails the second attempt may petition the Graduate School to retake the exam. The Nutrition Department Doctoral Committee and the Department Chair must support the petition before a student may proceed in the program.

The *division-specific* section of the comprehensive exam tests knowledge and critical thinking skills in the student's discipline. It is a written exam, administered, and evaluated by at least two faculty members in the student's division. The written exam is followed by an oral exam several days later. The oral exam is completed after faculty members have assessed the student's written exam, and it is designed to probe further in areas that may be deficient. A pass/fail decision on the division-specific exam is based on both the written and oral examinations. A student who fails the division-specific exam is required to retake the exam at a future date determined by the exam committee. A student who fails the second attempt must petition the Graduate School in order to retake the exam. The Nutrition Department Doctoral Committee and the Department Chair must support the petition by the exam committee.

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

*Eligibility to take the comprehensive exams:*

All students must enroll full-time in the department of Nutrition for at least one academic year before taking the comprehensive exam. Students must have completed NUTR 600, 620, and HBEH 600. In addition, students in Nutrition Epidemiology must also take NUTR 813 (or its equivalent). Students in Nutrition Intervention and Policy must take NUTR 801, 802, 803, 809, 811, 813, and BIOS 545. Students in the Nutritional Biochemistry must take NUTR 845. All students must earn a grade of "P" or higher in each course to be eligible to take the exam. Students are expected to take the comprehensive examination in the second year of the doctoral program. Students wishing to take the exam at the end of the first year in the program are required to obtain permission from their faculty advisor and the doctoral committee.

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

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

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

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

If a student with a disability/chronic medical condition is being seen at the Department of Disability Services or the Learning Disability Services, 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. 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 Student Services Manager and obtain required approvals and signatures. Once the committee is appointed, changes or substitutions among the members require additional approvals and signatures. The Doctoral Committee must approve the initial composition of the committee and any requested substitutions of committee members. A written request should be submitted to the Student Services Manager in an email. This email will be sent to the doctoral committee for consideration. The email should include the tentative dissertation title, a brief description of the dissertation (1-2 sentences), and the names of all committee members. The email must include a brief description of the expertise of any proposed committee member who is not a full member of the graduate faculty in the Department of Nutrition (see student services manager for example).

### **B. Functions**

Doctoral students should consult with members of their dissertation committee at frequent intervals throughout the progress of their research. At a minimum, students should submit a progress report and meet with each committee member at least once each semester during the research and dissertation-writing stage. Each student should have several formal meetings with a committee. The actual number and content of these meetings is left to the discretion of each research advisor, but a minimum of three meetings is suggested.

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

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

### **A. Dissertation Proposal**

The student who has passed comps and 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 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. Animal studies must be approved by IUCAC.

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

### **B. Dissertation Proposal Defense**

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

## **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 a minimum of 3-credit hours of NUTR 994 Doctoral Dissertation each semester.

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 F).

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

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

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

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

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

When a candidate nears the end of his/her research and can anticipate final approval of the dissertation, he/she must apply online for a degree at a particular graduation date. If the degree is not received at that graduation, the student must re-file a new application for the degree. Such applications must be filed by the deadline given in the "Calendar of Events" of the Catalog. Forms are available online at the following website:

[http://cfx.research.unc.edu/grad\\_appOnline/](http://cfx.research.unc.edu/grad_appOnline/)

## **E. Time Limitation**

A minimum of 12-months must lapse between defense of the dissertation proposal and the final defense of the dissertation unless approved by the PHD Committee. All requirements for the degree must be completed within eight years from the date of first registration in the Graduate School. An extension of the degree time limit may be granted upon petition to the Dean of the Graduate School.

## **IX. MONITORING STUDENT PROGRESS**

A checklist of all requirements for the doctoral degree is included as Appendix C. Students and their academic advisors should use the checklist to help monitor progress toward meeting requirements. There are two mechanisms for monitoring student progress, a formal end-of-first-year progress report and an ongoing monitoring system to track potential problems in a student's program.

Each division will review student progress with a formal end-of-first-year progress report (Appendix E) that is submitted to a two-member Progress Review Committee with approved by the advisor and comprised of the doctoral advisor and a tenure track faculty member from the student's division. A report is prepared by the student and submitted to the Progress Review Committee with an in person meeting scheduled during Summer Session I. 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 first year; answer any questions the student might have; and hear the student's assessment of Year 1. Following the meeting, the student prepares a brief summary statement of the committee's evaluation and recommendations and emails it to all committee members, the doctoral program director, and the student services manager.

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:

Doctoral Students:

- Minimum of 15-credit hours in EPID
- EPID 710 *and* EPID 715/716, with the remainder of credits in any other substantive epidemiology courses. (Note: BIOS 545 and EPID 705 are required for EPID 715).

Additional Criteria for Doctoral Students:

- 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
- A minor advisor in the Department of Epidemiology must be identified to assist in the planning of appropriate courses.
- The minor advisor is not required to be a member of the student's doctoral committee.
- 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 major and minor advisors and filed with the Department of Epidemiology, Student Services Office, the student's major department and The Graduate School.
- Per Graduate School policy, "if the dissertation involves the minor field, the dissertation committee must include at least one member from the minor field." [Note: this does not necessarily have to be the minor advisor].
- Effective Fall 2005, student must earn a grade of "P" or better in courses applying to the minor.
- The Department's "L" grade policy applied to core methods courses for all minor students.

Questions should be directed to: Nancy Colvin, Student Services Manager, Department of Epidemiology (966-7459; ncolvin@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. 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.

## APPENDIX B. LEARNING OBJECTIVES

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

Documentation:

### 1. Stated Learning Objectives

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

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

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

## APPENDIX C. COURSE REQUIREMENTS FOR THE DOCTORAL DEGREE

### PHD COURSE PLAN FOR MEETING CORE REQUIREMENTS:

- \_\_\_\_\_ NUTR 600 Human Metabolism: Macronutrients
- \_\_\_\_\_ NUTR 620 Human Metabolism: Micronutrients
- \_\_\_\_\_ NUTR 801 Advanced Nutrition Intervention and Research Methods I (required for **IP** students ONLY)
- \_\_\_\_\_ NUTR 802 Advanced Nutrition Intervention and Research Methods II (required for **IP** students ONLY)
- \_\_\_\_\_ NUTR 803 Nutrition Intervention Research Advanced Seminar (required for **IP** students ONLY)
- \_\_\_\_\_ NUTR 809 Applied Qualitative Research Methods (required for **IP** students ONLY)
- \_\_\_\_\_ NUTR 811/HBEH 811 Development of HPDP Interventions (required for **IP** students ONLY)
- \_\_\_\_\_ NUTR 813/EPID 813 Nutritional Epidemiology (required for **EPI** and **IP** students ONLY)
- \_\_\_\_\_ NUTR 845 Nutrition Metabolism (required for **BIO** students ONLY)
- \_\_\_\_\_ HBEH 600 Social and Behavioral Sciences in Public Health

### REQUIRED COURSES

- \_\_\_\_\_ BIOS 600 OR BIOS 545 Principles of Statistical Inference or Principles of Experimental Analysis
- \_\_\_\_\_ EPID 600 OR EPID 710 Principles of Epidemiology or Fundamentals of Epidemiology
- \_\_\_\_\_ SPHG 600 Introduction to Public Health
- \_\_\_\_\_ NUTR 785 Graduate Teaching Experience
- \_\_\_\_\_ NUTR 880 Elements of Being A Scientist
- \_\_\_\_\_ NUTR 885 Doctoral Seminar
- \_\_\_\_\_ NUTR 910 Nutrition Research
- \_\_\_\_\_ NUTR 994 Doctoral Dissertation

For nutrition biochemistry students, NUTR 845 plus two of the other listed courses are required:

- \_\_\_\_\_ NUTR 845 Nutritional Metabolism
- \_\_\_\_\_ NUTR 851 Advanced Nutritional Biochemistry: Obesity and Body Weight Regulation
- \_\_\_\_\_ NUTR 861 Advanced Nutritional Biochemistry: Nutrition and Immunology
- \_\_\_\_\_ NUTR 862 Advanced Nutritional Biochemistry: Epigenetic in Nutrition
- \_\_\_\_\_ NUTR 864 Advanced Nutritional Biochemistry: Oxidative Stress & Nutr. Antioxidants in Human Health & Disease
- \_\_\_\_\_ NUTR 868 Nutrients and Disease: Brain Function and Development
- \_\_\_\_\_ NUTR 920 Research Rotations for Nutr. Biochemistry Students 2 Rotations Required: \_\_\_\_\_

For nutrition epidemiology students, NUTR 818 and **EITHER** NUTR 814, EPID 743 or EPID 851 are required:

- \_\_\_\_\_ NUTR 818/EPID 818 Analytical Methods in Nutrition Epidemiology
- \_\_\_\_\_ NUTR 814/EPID 814 Obesity Epidemiology
- \_\_\_\_\_ EPID 743 Genetic Epidemiology: Methods and Application
- \_\_\_\_\_ EPID 851 Reproductive and Perinatal Epidemiology

\_\_\_\_\_ Courses for formal minor in Epidemiology completed – minimal 15-credit hours (*formal paperwork required*)

- \_\_\_\_\_ EPID 705 Introduction to Logic and Probability Logic in Epidemiology

NOTE: Does not count toward EPID Minor

- \_\_\_\_\_ EPID 710 Introduction to Epidemiology for majors and minors
- \_\_\_\_\_ EPID 715 Theory and Quantitative Methods in Epidemiology
- \_\_\_\_\_ EPID 716 Epidemiologic Data Analysis
- \_\_\_\_\_ Plus remainder of credits in any **substantive** epidemiology courses

For nutrition intervention and policy students, the following courses are required:

- \_\_\_\_\_ NUTR 809 Applied Qualitative Research Methods (spring course only)
- \_\_\_\_\_ NUTR 811/HBEH 811 Development of Health Promotion and Disease Prevention Interventions
- \_\_\_\_\_ NUTR 801 Advanced Nutrition Intervention and Research Methods I
- \_\_\_\_\_ NUTR 802 Advanced Nutrition Intervention and Research Methods II
- \_\_\_\_\_ NUTR 803 Nutrition Intervention Research Advanced Seminar (2 Semesters Required)
- \_\_\_\_\_ NUTR 813/EPID 813 Nutritional Epidemiology
- \_\_\_\_\_ One additional upper level statistics or analytic course

## **APPENDIX D. COURSE DESCRIPTIONS FOR 2013 – 2014**

### **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. Ammerman.

### **NUTR 295 UNDERGRADUATE RESEARCH EXPERIENCE IN NUTRITION (3)**

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

### **NUTR 400 INTRODUCTION TO NUTRITIONAL BIOCHEMISTRY (3)**

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

### **NUTR 600 HUMAN METABOLISM: MACRONUTRIENTS (3)**

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

### **NUTR 611 NUTRITION OF CHILDREN AND MOTHERS (Renamed for Fall 2013, NUTRITION ACROSS THE LIFECYCLE) (3)**

*Prerequisite, NUTR 400.* Permission of the instructor for students lacking the prerequisites. Biologic bases for nutrient requirements and dietary recommendations as they vary throughout the life cycle. Covers the nutritional needs of women during childbearing years, infants, children, and adolescents. Fall. Gordon-Larsen, Siega-Riz, and Holliday.

### **NUTR 615 NUTRITION IN THE ELDERLY (1)**

*Prerequisites, NUTR 400.* Permission of the instructor for students lacking the prerequisites. Special dietary and nutritional needs and conditions of the elderly. Includes overview of biology and demography of aging, discussion of nutritional requirements, and assessment of the elderly as well as nutrition in health and various disease states of the elderly. Fall. Holliday.

### **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. Makowski.

**NUTR 630 NUTRITION ASSESSMENT AND COUNSELING SKILLS (Renamed for Fall 2013, NUTRITION COMMUNICATION, COUNSELING AND CULTURE) (3)**

*Prerequisite, NUTR 240.* Permission of the instructor for students lacking the prerequisites. Functions of a dietitian working with individuals, emphasizing interviewing, assessment, nutrition care planning, counseling, and service documentation in prevention and therapeutic situations. Practice in the use of current dietary analysis software programs and development of educational materials included. Fall. Holliday and Sommers.

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

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

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

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

**NUTR 644 MEDICAL NUTRITION THERAPY CASE SEMINAR (1)**

*Prerequisite, NUTR 642.* Course designed to introduce the student to clinical nutrition practice. Students learn case-based medical nutrition therapy, professional interdisciplinary communication and documentation skills. Spring. Holliday.

**NUTR 650 FOOD SCIENCE, PRODUCTION AND MEAL PREPARATION (2)**

*Concurrent with NUTR 400.* Permission of the instructor for students lacking the prerequisites. Introduction to foods, food composition and properties; factors affecting selection, handling and prep of foods; food safety; basic food industry knowledge; meal planning. NUTR 650 Lab required. Spring. Wyler.

**NUTR 650L FOOD SCIENCE, PRODUCTION AND MEAL PREPARATION LAB (1)**

*Concurrent with NUTR 650.* Permission of the instructor for students lacking the prerequisites. This is the lab that accompanies NUTR 650. This lab applies the basic concepts of meal preparation, food production and food science. Lab fee required. Three lab hours per week. Spring. Wyler.

**NUTR 692H HONORS RESEARCH IN NUTRITION (3)**

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

**NUTR 695 NUTRITION RESEARCH (VAR. 1-9)**

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

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

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

**NUTR 700 NUTRITION IN MEDICINE (2)**

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

**NUTR 710 CLINICAL NUTRITION EXPERIENCE (5)**

*Prerequisite, NUTR 644.* Students are assigned to medical facilities where, under the supervision of registered dietitians, they participate in the nutritional care of patients. Field fee required. Forty hours per week for twelve weeks. Summer. Holliday and field preceptors.

**NUTR 720 PUBLIC HEALTH NUTRITION MANAGEMENT I (2-5)**

*Prerequisites, NUTR 630, NUTR 640, NUTR 715.* Allows student to focus on the roles and functions of the health care team and nutritionist in providing nutrition services at the community level. Includes community assessment and organization, quality assurance and program evaluation, and basic personnel management. Three-five lecture hours and 24-32 hours of field experience per week depending on MPH track. Summer. Sommers and Samuel-Hodge.

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

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

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

*Prerequisite, NUTR 725, EPID 600. Permission of instructor for nonmajors.* Designed to focus on translational nutrition research and application including grant writing, to prepare students to apply evidenced-based nutrition interventions (education, counseling, and research) in clinical, public health and policy arenas. Fall. Mayer-Davis.

**NUTR 730 ADVANCED NUTRITION FIELD EXPERIENCE (6)**

*Prerequisites, NUTR 710 and NUTR 720.* During a consecutive ten-week block of time, students are assigned to a) hospital or b) state, local, or district health agency or other appropriate agency for their supervised field experience. Field fee required. Fall, spring, summer. Holliday and Sommers.

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

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

**NUTR 740 BLOCK FIELD RESEARCH (4)**

*Prerequisite, NUTR 700 and NUTR 813.* During a consecutive ten-week block of time, students conduct nutrition-related research on topics including cancer, diabetes, hypertension, obesity, and cardiovascular disease. Supervised by an approved faculty and mentor. Field fee required. Fall, spring, summer. Faculty.

**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 750 INTERNATIONAL NUTRITION: SPECIAL TOPICS (1).**

*Prerequisite, NUTR 745.* Follow-up in greater detail of selected issues discussed in NUTR 745. Two seminar hours per week. Spring. Adair.

**NUTR 780 PUBLIC HEALTH ENTREPRENEURSHIP (3)**

*Prerequisite, Approval of Instructor (complete application ~ <http://www.unc.edu/cei/grad>). Basic concept underlying commercial and social entrepreneurship applied to public health, including guest lectures by individuals with proven success in these areas. Spring. Ammerman.*

**NUTR 785 GRADUATE TEACHING EXPERIENCE (1)**

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

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

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

**NUTR 802 ADV. NUTRITION INTERVENTION AND RESEARCH METHODS II (2)**

*Prerequisite, NUTR 801. Selected topics in nutrition intervention and policy research design and evaluation; continuation of NUTR 801. Spring. IP Faculty.*

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

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

**NUTR 809 APPLIED QUALITATIVE RESEARCH METHODS (2)**

*Prerequisite, permission of instructor. This course introduces students to qualitative research methods with an emphasis on their use in nutrition-related programmatic research. This course will use a combination of didactic, interactive and applied techniques to teach knowledge and skills relevant to qualitative research. Spring. Bentley.*

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

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

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

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

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

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

**NUTR 813 NUTRITIONAL EPIDEMIOLOGY (3)**

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

**NUTR 814 OBESITY EPIDEMIOLOGY (3)**

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

**NUTR 818 ANALYTICAL METHODS IN NUTRITIONAL EPIDEMIOLOGY (3)**

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

**NUTR 820 ADVANCED PUBLIC HEALTH NUTRITION MANAGEMENT (3)**

*Prerequisite, MPH degree or permission of the instructor.* Analysis of policy development and management techniques used in the public and private sectors with relevance to the development and management of nutrition policy and programs. Spring, alternate years. Faculty.

**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. Niculescu.

**NUTR 851 ADV. NUTRITIONAL BIOCHEMISTRY: OBESITY AND BODY WEIGHT REGULATION (2)**

*Prerequisites, NUTR 600 and 620; or permission of instructor.* Develop a basic understanding of obesity and body weight regulation based on recent scientific advances and concepts. Topics covered will include the regulation of food intake and energy expenditure, as well as, pharmacological and surgical treatments of obesity. Spring, alternate years. Swick.

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

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

**NUTR 862 ADV. NUTRITIONAL BIOCHEMISTRY: EPIGENETICS IN NUTRITION (2)**

*Prerequisite, permission of the instructor for non-majors.* Introduction to epigenetic mechanisms regulating gene expression. Emphasis on the relationship between nutrition and epigenetics, and on related health outcomes. Spring, alternate years. Niculescu.

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

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

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

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

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

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

**NUTR 875 NUTRITION POLICY SEMINAR (1-2)**

*Prerequisite, permission of the instructor.* Doctoral seminar to introduce federal policy strategies for monitoring and improving nutritional status of populations. Five policy areas will be covered: national nutrition objectives/planning strategies, dietary guidance, nutrition surveillance/monitoring, economic policy as related to federal feed programs, and policy analysis. Fall. Ammerman.

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

*Prerequisites, for doctoral students permitted by instructor/prepared with PHD aims/focus.* Course focuses on key elements that contribute to a successful career as a scientific researcher. These include scientific presentations, NIH proposal grant writing, evaluating published manuscripts, sources of funding, peer review, use of animals and humans in research, and scientific ethics. Fall. Zeisel, Popkin, and Ward.

**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. Faculty.

**NUTR 992 MASTER'S PAPER (3)**

Fall, spring, and summer. Faculty.

**NUTR 993 MASTER'S THESIS (3)**

Fall, spring, and summer. Faculty.

**NUTR 994 DOCTORAL DISSERTATION (3)**

Fall, spring, and summer. Faculty.

## **APPENDIX E. END-OF-YEAR PROGRESS REPORT**

### **Guidelines for Progress Review Meetings for First-Year PhD Students**

1. The academic advisor and the advisee discuss the composition of the two-member Progress Review Committee, with the advisor approving the committee. The committee must include the academic advisor and one other tenure track faculty member from the student's division. A third committee is optional and can be added in cases when a student's work spans two divisions or is interdisciplinary. This committee member can be from another department but is most often from the department.
2. Meetings should be scheduled during Summer Session I. The student is responsible for scheduling the meeting (60 minutes) and reserving a room.
3. Students prepare a summary report for distribution to the committee one week before the meeting. The report covers the following topics:
  - Educational and professional objectives;
  - Completed and proposed coursework, and grades;
  - A description of other involvements and responsibilities (e.g., RAs, fellowships)
  - A list of questions for the committee; and
  - A current CV.
4. 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 first year; answer any questions the student might have; and hear the student's assessment of Year 1.
5. The student's advisor leads the meeting. After the student provides a brief overview of his/her background (academic, research, work experience), research interests, and professional goals, s/he can expect the advisor to focus the meeting on coursework (including any student requests to transfer in credits), practicum activities and plans, funding possibilities, and dissertation plans.
6. Following the meeting, the student prepares a brief summary statement of the committee's evaluation and recommendations and emails it to all committee members, the doctoral program director, and the student services manager.

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

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

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

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

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

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

### **AUTHORSHIP**

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

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

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

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

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

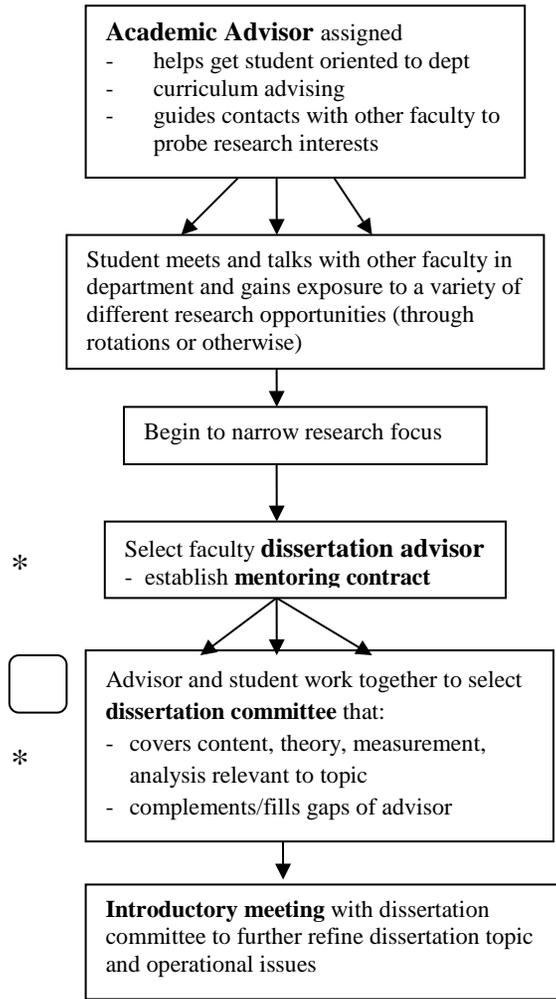
Multiple authors often result in complications. Chances for errors may be greater when the number of persons responsible for a submission is increased. Differences in roles and status compound the difficulties of according credit. Junior scholars may seek to gain automatic acceptance of their work by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

## **ACKNOWLEDGMENTS**

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

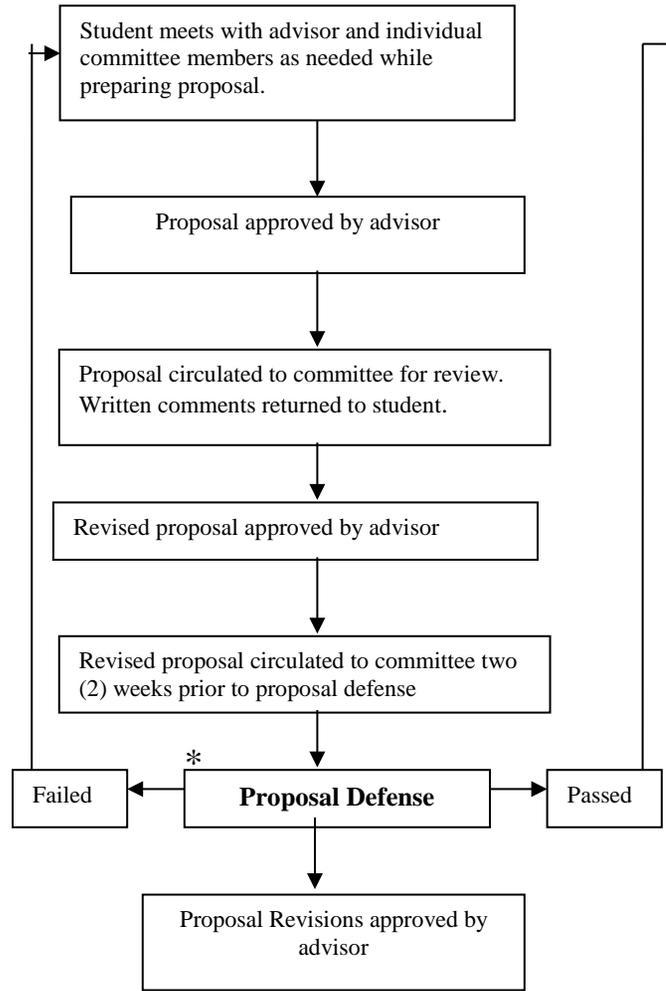
Authors have an obligation to use journal space wisely and efficiently. Including extensive and repetitious lists of acknowledgments is not a good use of journal space and is of little value to the readers of a journal. Unlimited lists undermine the meaning of authorship and the value of an acknowledgment.

**Selecting a Dissertation Advisor/Topic/Committee**



Key:  
 Target completion dates  
 \* Form required

**The Dissertation Proposal**



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

**The Dissertation Research and Defense**

