# GRADUATE STUDENT HANDBOOK

Department of Nutrition

College of Education, Health, and Human Sciences

2023-2024

THE UNIVERSITY OF TENNESSEE KNOXVILLE

DEPARTMENT OF NUTRITION

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# WELCOME FROM THE FACULTY

*GRADUATE SCHOOL IS YOUR VEHICLE, NOT YOUR DESTINATION. WE UNDERSTAND THAT.*

The future of the Department of Nutrition at the University of Tennessee (UT) depends collectively on the talent and vision of its students, faculty, and staff. We recognize that our vision and goals reach well beyond our classrooms and laboratories. Our success is defined, in part, by the impact that our students and alumni make on the health of our population and the advancement of our science. The field of Nutrition is dynamic in both research and application, and its importance to the global community continues to grow. Our faculty value the potential brought by each new class of graduate students to nutrition research and practice. We take pride in maintaining strong programs with focus areas in biomedical nutrition science, clinical nutrition and dietetics, and community and public health nutrition. In addition, faculty engage in research, professional service, and advocacy to improve human health and enhance health equity, and thus we recognize our responsibility to introduce graduate students to the highest levels of professionalism in the discipline, which includes scholarship, public involvement, and evidence-based applied practice.

We warmly welcome you to the Department of Nutrition's graduate programs. This *Graduate Student Handbook*, hereafter, referred to as the *Handboo*k, is your "user's guide" to all graduate programs in the Department and to key requirements of the UT Graduate School. Please consult this *Handbook* frequently, as it contains all the departmental policies and guidelines that apply to your graduate school experience.

The degree programs that are covered in this *Handbook* include the MS and PhD in Nutrition (with degree tracks in Biomedical Nutrition Science, Clinical Nutrition and Dietetics, and Community and Public Health Nutrition) and the Dual MS-MPH degrees. Please refer to the *Handbook* and the *Graduate Catalog* for the specific minimum course requirements and the policies and procedures pertaining to each degree program. Any discrepancies between these two documents should be discussed with your major advisor. Additionally, the graduate programs are revised over time; therefore, the *Handbook, Graduate Catalog*, and your major advisor are the best resources for addressing questions specific to your year of admission.

The *Handbook* reflects a continuing process, and its contents represent long-standing policies as well as more recent changes. Recommendations for the *Handbook*'s improvement are welcome, and they may be presented to your advisor, other members of the faculty, or members of the Department's Graduate Committee.

We hope you enjoy your graduate studies; this *Handbook* has been compiled to support the process to follow for your graduate education.

# INTRODUCTION

This *Handbook* does not deviate from established Graduate School Policies noted in the *Graduate Catalog* but provides the specific ways in which those policies are carried out within the Department of Nutrition.

Graduate students are strongly encouraged to review the Graduate School's specific deadlines and all required forms at the Graduate School's *website*.

## PURPOSE OF THE HANDBOOK

The purpose of this document is to present the policies and procedures pertaining to graduate study in the Department of Nutrition. The policies and procedures documented here are specific to the Department, but are also consistent with those of the College of Education, Health, and Human Sciences and UT. Because this *Handbook* is revised annually, it contains information that may be more current than the *Graduate Catalog.* However, though this *Handbook* may include changes in departmental programs that are not yet in the *Graduate Catalog*, the *Graduate Catalog* remains the *final word* and students are encouraged to review both documents and discuss any discrepancies with their major advisor.

The *Handbook* contains several important hyperlinks related to policies and procedures. These hyperlinks may be directly accessed from within this document by clicking on the hyperlink associated with the document or webpage.

Graduate students are expected to be aware of and satisfy all regulations governing their work and study at the university. Graduate students should review the following documents and websites: *Hilltopics Student Handbook* (Academic Standards of Conduct), the *Graduate Catalog*, Graduate Student *Appeals*, and Graduate Student *Assistantships*.

All issues related to graduate administration are overseen by the Department's Director of Graduate Studies, *Dr. Dallas Donohoe*. Specific questions related to Community Nutrition or Public Health Nutrition should be directed to the Community Nutrition/Public Health Nutrition Graduate Program Coordinator, *Dr. Marsha Spence.* Specific questions related to Clinical Nutrition and Dietetics and credentialing as a registered dietitian nutritionist (RDN) should be directed to the Director of the ACEND-accredited Graduate Program in Nutrition and Dietetics (GP), *Dr. Melissa Hansen-Petrik.* Specific questions related to Biomedical Nutrition Science concentration should be directed to *Dr. Ling Zhao*. General concerns may also be directed to the Department Head, *Dr. Dhiraj Vattem*, or the Graduate Program Coordinator, *Ms. Pam Cash*.

## MISSION

The Department of Nutrition seeks to promote an understanding of the science of nutrition for the enhancement of the physiological and social well-being of individuals, families, and communities. This is accomplished primarily through research and education.

## VISION

Achieve national recognition in academic excellence as a leading research and graduate program which prepares professionals to assume leadership roles in dietetics, biomedical nutrition, community nutrition, and public health nutrition.

## CORE VALUES

- Supports the continuous quest for academic achievement through teaching, research, and service through collaboration among diverse faculty, staff, students, communities, families, and youth.
- Believes in the development of tomorrow's leaders, who are culturally sensitive, represent an array of diverse populations, and can work collaboratively and cross-culturally regardless of race, creed, ethnicity, sex, sexual orientation, gender identity, physical ability, or socioeconomic position, upon entering the workforce.
- Believes that the classroom is a safe environment, which welcomes individuals from diverse backgrounds and promotes ideas and discourse around issues of diversity and health equity, in which all ideas are respected, met with open-minds, and are void of preconceived notions.
- Embraces diversity and works to ensure, through both policies and actions, that each individual member of our community, and all those we encounter, will feel included, welcomed, connected, supported, and valued.
- Committed to fostering professionals who are dedicated to increasing health equity and quality of nutrition services through student- and faculty-led research and outreach using University, community, and government resources for the benefit of the scientific community and as a means of positively affecting nutrition-related health that will benefit society.

## NUTRITION PHILOSOPHY

The field of nutrition can be scientifically examined across the translational spectrum, from cellular mechanisms to implementation of clinical interventions and public health policies that improve the health of individuals and the public.

# GENERAL DUTIES AND RESPONSIBILITIES

Faculty and graduate students are responsible for knowing the rules and regulations of the University's Graduate Council and departmental requirements. The Department of Nutrition's graduate programs have requirements beyond the minimum established by the Graduate School. Students are expected to keep up to date on curricular rules and regulations by visiting the Graduate School *website* regularly and meeting with their graduate committee.

A statement of graduate students' rights and responsibilities is printed on the student's admission status form. Additional copies are available from the *Office of Graduate Admissions*.

As detailed in the *Graduate Catalog* and *Hilltopics*, academic integrity is the responsibility of all faculty and students. This includes intellectual integrity, academic honesty, and avoidance of plagiarism. Plagiarism is a serious offense, which involves using the work of others without giving appropriate credit or acknowledgement. All members of the academic community are expected to summarize, paraphrase, and quote sources appropriately. There are a variety of resources available on how to avoid plagiarism through the University Libraries. Nutrition students are strongly encouraged to review these resources, so that they can write effectively and confidently, and with the knowledge that they have appropriately credited their resources. All members of the academic community are responsible for being familiar with and following the code of honesty. Further, it is important to read course syllabi statements related to the use of generative artificial intelligence tools, such as ChatGPT. Some courses may allow students to use these tools, while others may not.

# FACULTY DIRECTING GRADUATE RESEARCH AND RESEARCH INTEREST

Department of Nutrition faculty members serve as major advisors and/or on committees for graduate students undertaking research/projects as part of the degree programs in Biomedical Nutrition Science and Community/Public Health Nutrition. Faculty have a variety of research areas of interest. Table 1 provides a list of faculty who are eligible to direct graduate theses, dissertations, and projects, along with their contact information and research interest areas. For more information on faculty research interests, please view the Faculty and Staff section of the Nutrition Department *website*.

Table 1. Faculty Eligible to Direct Graduate Theses, Dissertations, or Projects

| Biomedical Nutrition Science | |
|---|---|
| Faculty Name & Contact Information | Research Interests |
| Ahmed Bettaieb, PhD<br>Assistant Professor<br>865-974-6267<br>*Laboratory Website*<br>*abettaie@utk.edu* | Molecular and genetic mechanisms contribute to the development of metabolic diseases including obesity, diabetes, chronic inflammation, and cardiovascular diseases. The main goal of this research is to exploit novel therapeutic strategies aimed at reducing the overall burden of these diseases. This is achieved using cellular, biochemical, gene knockout, and system biology approaches. |
| Jiangang Chen, MD, MPH, PhD<br>Adjunct Associate Professor<br>865-974-5041<br>*jchen38@utk.edu* | Potential environmental impacts on human reproduction, with a special interest in effects of endocrine disruptors (EDS) on the homeostasis of endogenous hormones. This disruption may contribute to the pathology of hormone-responsive diseases, including prostate and breastcancers. |
| Dallas Donohoe, PhD<br>Associate Professor<br>865-974-6238<br>*Laboratory Video*<br>*ddonohoe@utk.edu* | Dietary chemoprevention and cancer cell metabolism. Mechanism by which a high fiber diet and bacterial derived butyrate protect against colorectal cancer. The importance of the Warburg effect in driving cancer progression. |
| Ling Zhao, MD, PhD<br>Professor<br>865-974-1833<br>*Laboratory Video*<br>*ling.zhao@utk.edu* | Cellular and molecular basis through which dietary components, pharmacological agents, or environmental exposure (e.g., chemical ingredients inpersonal care products) increase or decrease the risk of obesity and obesity-associated metabolic diseases (e.g., insulin resistance and diabetes) using cell and animal models. |

| Community/Public Health Nutrition | |
|---|---|
| Faculty Name & Contact Information | Research Interests |
| Sarah Colby, PhD, RDN<br>Associate Professor<br>865-974-6248<br>*Laboratory Website*<br>*scolby1@utk.edu* | Individual, family, and community behavior change for health promotion (primarily in diet, physical activity, and stress management) with an emphasis on health communication through novel nutrition education strategies(including marketing, arts, and technology). |
| Katie Kavanagh, PhD, RDN, LDN, CLC<br>Associate Professor<br>865-974-6250<br>*Laboratory Website*<br>*Laboratory Video*<br>*kkavanag@utk.edu* | Infant- and child-feeding behaviors and the impact on appropriate growth; development of effective strategies tosupport compliance with infant- and child-feeding recommendations. |
| Hollie Raynor, PhD, RDN, LDN<br>Professor<br>865-974-9126, ext 1<br>*Laboratory Website*<br>*hraynor@utk.edu* | Lifestyle interventions, designed to improve eating and activity behaviors, for obesity treatment in children and adults. Both efficacious studies, in which dietary factors, such as energy density and timing of eating, and effectiveness studies, in which lifestyle interventions are translated into practice-based settings (i.e., primary care), are focused on. |
| Marsha Spence, PhD, MPH, RDN, LDN<br>Professor of Practice<br>865-974-6265<br>*Laboratory Website*<br>*Laboratory Video*<br>*mspence@utk.edu* | Improving food and nutrition security among maternal and child populations and on college campuses. School- and community-based interventions to prevent childhood obesity and promote access to healthful food using novel methods, i.e., positive youth development, peer leadership, coaching, active parental engagement, and advocacy training. |

# GENERAL POLICIES AND PROCEDURES

Faculty, graduate students, and staff are accountable for the policies and procedures detailed in these documents. See Table 2 for degrees and concentrations.

Table 2. Department of Nutrition Graduate Degrees and Concentrations

| Bachelor of Science/Master of Science Degrees (BS/MS) | Master of Science (MS) Degrees | Doctor of Philosophy (PhD) Degrees |
|---|---|---|
| Biomedical Nutrition Science (BNS) | Biomedical Nutrition Science (BNS) | Biomedical Nutrition Science (BNS) |
| Community Nutrition (CN) | Clinical Nutrition and Dietetics (CND) | Implementation Science in Community Nutrition (ISCN) |
| | Community Nutrition (CN) | |
| | Public Health Nutrition (PHN) | |
| | Dual MS/Master of Public Health (MS-MPH) | |

## ADMISSION

### BACHELOR OF SCIENCE/MASTER OF SCIENCE (BS/MS)

A student who is conditionally admitted to the BS/MS program may complete up to 9 credit hours of graduate level coursework during the student's undergraduate study and apply those 9 credit hours to satisfy both the BS and MS degree requirements, provided that these graduate credit hours were approved by both the Department and by the Graduate School. The form "Nutrition Conditional Admission 5 Year BS/MS" is available from the Director of Graduate Studies and must be completed and signed by the undergraduate advisor, undergraduate coordinator, and graduate advisory committee by May 1st of their junior year. After review by the Department, the form will be signed by the Director of Graduate Studies and submitted to the Graduate School for approval and processing.

To receive graduate credit for the 9 credit hours approved on the Nutrition Conditional Admission Form, the student must complete and submit the *Senior Requesting Graduate Credit Form* to the Graduate School before the start of each semester when graduate courses are taken and have approval of their academic advisor and the course instructor(s).

Conditional admission into the BS/MS program does not guarantee acceptance into either the Graduate School or the MS program. Students in the BS/MS program must apply for admission to the Office of Graduate Admissions and to the MS program during their senior year of undergraduate study for the term immediately following the completion of their undergraduate study, following the same procedures of all other student applicants. Students will be fully admitted to the MS program after they have been accepted both by the Graduate School and by the Department of Nutrition. Students will not be eligible for graduate assistantships until they are enrolled as graduate-level students in the Graduate School.

## MASTER OF SCIENCE (MS) AND DOCTOR OF PHILOSOPHY (PhD)

University graduate student admission requirements can be found on the Office of Graduate Admissions website. Information regarding special admission categories, such as non-degree, conditional, probationary, or readmission, also can be found in the UT *Graduate Catalog*. Applying for the MS or PhD program is completed online. Information about these programs, and links to the online graduate application and additional documents are located on the Department of Nutrition *website*.

## CLINICAL NUTRITION AND DIETETICS

Students applying to the ACEND-accredited Graduate Program in Nutrition and Dietetics (Clinical Nutrition and Dietetics concentration) should refer to the *Guide to ACEND-Accredited Nutrition and Dietetics Programs* at The University of Tennessee regarding program-specific prerequisites and application procedures.

## DUAL MS-MPH

A coordinated dual program, leading to both the MS in Nutrition (PHN concentration) and the Masters in Public Health (MPH), is available (dual MS-MPH). This program allows students to complete both degrees in less time than would be required to earn both degrees independently. Students applying for the dual MS-MPH program file separate applications for the MS and for the MPH Programs. The MPH degree is administered by the Department of Public Health. These students must be admitted to both the MS Program and the MPH Program to pursue the dual MS-MPH.

## CURRENTLY ENROLLED MASTERS STUDENTS

If a student is admitted and enrolled in either the MS in Nutrition (PHN Concentration) or the MPH, but decides to apply for the dual program, then they must file a "*Request for Change of Graduate Program*" to the second program. The student should follow the instructions on the Graduate School's website for Change of Program. It is important to indicate on the form that the new application is for the dual program. Once admitted to the second program, the student immediately should notify the Community Nutrition/Public Health Nutrition Program Coordinator and their major adviser. This is to ensure proper advising and program management.

## TERMINATING ONE DEGREE

Students enrolling in the dual program, but who later consider dropping one of the two degrees, should work very closely with their major advisor as reverting to only one degree may introduce unexpected issues that could impact their progress depending on the student's specific program (i.e., thesis vs. project option). Therefore, it is imperative that students explore their situation with their major advisor as soon as they are considering taking this action.

# MASTER BYPASS

Exceptional students with demonstrated research ability may apply directly to the doctoral program without having first completed a master's degree. The Master Bypass is for bachelor-level students who apply for the PhD program prior to completing a master's degree OR for master's level students who exhibit extraordinary promise for success in the doctorate program after originally being admitted to the MS program.

**Criteria and Procedures for those with a Bachelor's Degree:** Students who wish to bypass the master's program and apply directly to the PhD program, must, at a minimum, meet the following:

- Satisfactory completion of all pre-requisite courses necessary for admission into themaster's program with a B or better,
- An undergraduate GPA of 3.5 or better upon completion of the bachelor's degree,
- Previous research experience in private or public settings.

**Criteria and Procedures for Enrolled Master's Students:** Students who enter any graduate program in the Department as a master student and wish to bypass the Master's degree and move directly into the doctoral program without receiving a Master's Degree, must, at a minimum, meet the following:

- An average GPA of 3.5 or better after completion of at least 18 credit hours, excluding independent or directed study courses.
- Demonstrated research ability by disseminating research findings as an author on a manuscript submitted for publication and/or as a presenter at a national scientific meeting (either oral presentation or poster) prior to manuscript submission **or** previous research experience in private or public settings.

After completion of at least 18 credit hours, a MS student who is interested in the Master's Bypass, must provide a written request (along with a current CV and unofficial transcript) via a single email to their major advisor, and cc'ing all committee members, the Director of Graduate Studies, and the Department Head. If a student is in the MS-MPH dual program, the request may not be submitted until after the student has completed their interdisciplinary and block field experiences.

After receipt of the written email request, the Director of Graduate Studies will convene a committee that will consist of the Department Head, the Director of Graduate Studies, and enough additional

faculty members so that both the PhD-granting concentrations in the department are represented by at least two faculty members. The committee will meet to discuss the request and will make a decision within two weeks of that meeting. If the student is granted the Master's Bypass, they should *apply for admission* to the Department of Nutrition's doctoral program no later than the semester after the bypass is granted.

## ORIENTATION

Information on the University's graduate student orientation can be found *here*. In addition, the Department of Nutrition hosts an orientation for all new graduate students prior to classes beginning each Fall semester. Programs may host concentration-specific orientations for new respective students around the same time. Further, all incoming graduate students are encouraged to participate in the *Interactions that Make a Difference: Increasing Cultural and Linguistic Awareness, Knowledge, and Skills* workshop prior to classes beginning, in support of the Department's commitment to linguistic competence and diversity.

## INITIAL ENROLLMENT

Upon arrival at UT, graduate students should report to the Graduate Program Coordinator, *Ms. Pam Cash*, to complete an information card for the Departmental file. The major advisor identified on the student's letter of admission has been carefully selected based on the degree program and desired concentration area, a match between student and faculty member regarding common research and career interests with the student, and the faculty member's qualifications and availability. This faculty member should serve as the permanent major advisor under most circumstances. If a student wishes to change major advisor or concentration, it is the responsibility of the student to contact other faculty to determine if an opening is available. It is important to note that not every faculty will have an opening for new students, and that a change in concentration may increase the length of time that it takes to complete the degree.

## ADVISING

Students should register for classes using UT's online registration *system*.

- Both the advisee and the major advisor have responsibilities in the advising process. The responsibilities of the advisee are as follows:
    - Contact their major advisor to schedule an appointment prior to registration for classes for the subsequent semester.
    - Consult the University registration *webpage* and the *timetable of classes.*

- Consult the University Graduate School *webpage*. This site provides information on procedures.Students have found the *Graduation Information for Graduate Students* and *Steps to Graduation* helpful.
- Notify the *Graduate Program Coordinator* of any change in address or telephone number.

- Responsibilities of the major advisor are as follows:
  - Schedule advising appointments when contacted by the advisee.
  - Assist the advisee in the development of a plan of study that is commensurate with the advisee's background, interests, and goals that comply with the approved curricula policies.
  - Provide guidance to the advisee on selection of committee members if appropriate for concentration and program.
  - Assist the advisee in meeting Graduate School requirements and deadlines.
  - Provide guidance in the development of a research project as appropriate for concentration and program.
  - Coordinate written and/or oral examinations, as required by the specific concentration and programs in which the advisee is a candidate.

# ADMISSION TO CANDIDACY

## BS/MS AND MS

The Admission to Candidacy (ATC) form establishes the coursework required for graduation. You may submit this application after completing nine hours of graduate coursework with a 3.0 average or better. **You must submit the application no later than the last day of classes preceding the term in which you expect to graduate** (see current deadline dates). *Note that the Admission to Candidacy application must be submitted before you will be allowed to complete your thesis defense or final examination if required by your program concentration.* If for any reason (class unavailability, etc.), a course listed on the approved ATC cannot be completed, the candidate may submit a Revised Admission to Candidacy form. These revisions will need to be approved by the candidate's major advisor.

**Thesis Option (BNS & PHN); Project Option, without a Comprehensive Exam (BNS & CN); and Project Option, with a Comprehensive Exam (PHN***)* the *MS Admission to Candidacy-Masters or Specialist Degree Form* must be completed and signed by all committee members and the Director of Graduate Studies and submitted to the Graduate School no later than the last day of classes in the semester preceding the semester they plan to graduate.

**Coursework-only Option, without Comprehensive Exam (CND and BS/MS CN students)**: the *MS Admission to Candidacy-Masters or Specialist Degree (Course only, No Comprehensive Exam) Form* must be completed and signed. The form must be signed by the Program Coordinator of either the CND program or the CN program, as appropriate for the student's concentration, and the Director of Graduate Studies.

If there are any changes to the committee or if the thesis/project options changes, the *Revised MS Admission to Candidacy Application* (Graduate School form) must be revised and reprocessed.

## MS/MPH

The *Admission to Candidacy (ATC) form* establishes the coursework required for graduation. You may submit this application after completing nine hours of graduate coursework with a 3.0 average or better. **You must submit the application no later than the last day of classes preceding the term in which you expect to graduate** (see current deadline dates). *Note that the Admission to Candidacy application must be submitted before you will be allowed to complete your thesis defense or final examination.* If for any reason (class unavailability, etc.), a course listed on the approved ATC cannot be completed, the candidate may submit a *Revised Admission to Candidacy form*. These revisions will need to be approved by the candidate's major advisor. Because the dual MS-MPH program represents two distinct programs, two forms must be filed for all steps to graduation: one for the MS and one for the MPH program. This means the Admission to Candidacy form is filed for each program. Both Admission to Candidacy (ATC) forms should be submitted together with one academic history record and at the top of each Admission to Candidacy form, the student should type in bold letters: "Dual MS-MPH Program." As noted previously, the courses listed for completion of the MS and MPH **will be the same** on both Admission to Candidacy forms. Both forms must include all courses completed for the MS, foundation courses for the MPH, plus the concentration-specific courses listed for the MPH. The committee members, however, will differ slightly, so students should carefully coordinate completion of these forms with their major advisor in Nutrition. Other forms that are filed for both programs include the Application for Graduation.

## PHD

A doctoral student may be admitted to candidacy after passage of the comprehensive examination, fulfillment of the language requirement (if applicable), and maintenance of at least a B average in courses. Admission to candidacy must be secured at least one semester prior to the anticipated graduation. Each student is responsible for filing their application for admission to candidacy, which must be signed by the committee members and approved by the Graduate School on the *Admission to Candidacy-Doctoral Degree* form. The student will be notified when admission to candidacy has been approved.

# LIABILITY INSURANCE, SUBSTANCE ABUSE, AND CRIMINAL BACKGROUND CHECK

The Department of Nutrition trains graduate students through experiential learning opportunities. During many of these experiences, graduate students will interact with people from the community. *To protect the community, the Department requires all graduate students who will be engaging in service learning and/or research projects that involve direct contact with the public (i.e., supervised practice and block field experiences, courses with service-learning components and/or practicum courses included in the ACEND-accredited Graduate Program) to have the following assurances prior to participation:*

- Liability insurance
- Criminal background check
- 12-panel drug and alcohol screening test

The costs of the insurance, background check, and drug and alcohol screening are the sole responsibility of the graduate student.

For students who participate in community-based activities and experiences, all assurances listed above must be completed upon entering the program in the first semester of the first year and *must be maintained for all the years in which field experiences are occurring*. Students will be provided with information regarding the insurances at the graduate student orientation. A student who has any criminal incident on their background check and/or has a positive drug and/or alcohol screening (showing the presence of drugs or alcohol) will NOT be allowed to complete ANY experiential learning component described above for at least 1 year, which may substantially delay the student's graduation and/or may result in the student being unable to complete the requirements for graduation from the program.

# ETHICS AND INTEGRITY

The Department of Nutrition faculty, staff, and students take research ethics and integrity very seriously. Nutrition students who participate in research are expected to understand and demonstrate ethical principles in the performance of all activities related to scientific research, including mechanisms to promote honesty, accuracy, efficiency, and objectivity in research. Nutrition students are strongly encouraged to participate in *trainings and workshops* related to the responsible conduct of research provided by the *Office of Research, Innovation & Economic Development.*

Research notebooks, records, and data are the property of UT and may not be removed from the University or accessed from unsecure internet connections.

If you desire a copy for your own use, you are required to obtain permission from the faculty supervising the research project, and the copy should be made at your own expense.

All official documents submitted by graduate students, such as but not limited to theses, dissertations, and manuscripts *will be reviewed electronically for plagiarism and other ethical issues*, using plagiarism detection software provided by UT. Students should familiarize themselves with the *iThenticate software*, and should use it to review any and all work completed in the process of earning their degree.

## GRADUATE STUDENT TRAVEL

As part of graduate training, the faculty highly recommend students make presentations at professional meetings when possible. Discuss these opportunities with your major advisor.

In general, partial funding can be arranged for graduate students who travel to meetings to present their work or take part in other educational opportunities. Students should begin the process of requesting funds and completing the necessary paperwork well in advance to ensure proper reimbursement of expenses. Potential funding sources include their major advisor's internal and external funding, when appropriate, the Department, the College, and the University's *Graduate Student Senate (GSS) Travel Awards*. The student should take responsibility for exploring all funding sources. Students on official University travel are responsible for adhering to University travel regulations and should consult the University of Tennessee *Travel Policy* to ensure compliance with those regulations. Travel requests and arrangements should be made in Concur, a UT supported online booking tool, and in consultation with the major advisor. Typically, expenses not paid by a Department or faculty travel card, i.e. meal per diem and ground travel, are reimbursed within two weeks of processing the expense report. However, if paying for these expenses out-of-pocket, students may request a cash advance for the expenses.

Please consult your major advisor and the Department business manager for the steps to process your travel request, arrangements, and reimbursement.

## RESEARCH COMPLIANCE

**Human Subjects:** UT has a training requirement for Human Subjects Research. All researchers at UT, including students doing dissertation or thesis research, who will be submitting an Institutional Review Board (IRB) protocol must take the *CITI training*. IRB training completed as classwork meets this requirement. The training is valid for 3 years.

All research projects or studies that involve the use of human subjects must be reviewed by UT's IRB or be certified as exempt from IRB review. All students involved in projects with human subjects should familiarize themselves with the information available from the Officeof Research, Innovation &

Economic Development's Research Integrity & Assurance *website* regarding working with human subjects. **No research with human subjects can be initiated until approval from IRB is acquired.**

Understanding the special nature of the human subjects research review system is importantand required by federal regulations governing research with human subjects. To obtain copies of the regulations governing research with human subjects, graduate students shouldcontact the *IRB Liaison* for the Department of Nutrition, and your major advisor will guide you through this process.

If you are engaging in research that involves minors, additional paperwork will be necessary. Specifically, anyone (faculty, students, or other covered adults) who conducts research that involves minors must submit certification received from registering and completing all the requirements outlined in the *Policy on Programs with Minors*. Your major advisor will guide you through this process.

**Animal Subjects:** All research projects or studies that involve the use of animals must be reviewed by the University's *Institutional Animal Care and Use Committee* (**IACUC).** There are no exemptions to this requirement. Graduate students working with animals or animal tissues are required to enroll in the occupational health program (OHP) and complete the mandatory training, which can be completed by logging in at the UTK Community Members IACUC Training *website.* Your faculty research advisor will guide youthrough this process.

Human Cells, Infectious Agents, Recombinant DNA or Biological Fluids: These research projects and studies require approval of the *Biosafety Program* as well as completion of specific biosafety training. More information can be found *here*. Your faculty research advisor will guide you through this process.

Radioactive Materials and/or Radiation Sources (including x-ray): Research projects of this nature require approval and training from the *Radiation Safety Department*. Your major advisor will secure the approvals and guide you through the process of receiving the necessary training.

## FINANCIAL ASSISTANCE

Types of Assistantships- General information regarding graduate assistantships and other types of funding for graduate school can be found in the *Cost and Funding from the UTK Graduate School*.

The Department has several types of assistantships available. These include Graduate Teaching Assistant/Associate (GTA) and Graduate Research Assistant (GRA). All assistantships are governed by the *Policy for the Administration of Graduate Assistantships*. The work hours are 20 hours per week, excluding organized class time, with a 50% appointment, or 10 hours per week, excluding organized class time, with a 25% appointment. Salary is subject to federal income tax. Work responsibilities of the different assistantships vary as described below, but all provide a monthly stipend, maintenance fees (tuition), other mandatory fees, health insurance (if at least a 25% appointment), and differential tuition, if applicable. Students should review their appointment letter for a description of assistantship responsibilities and discuss these with the assigned faculty supervisor.

Students on 9-month appointments for the fall and spring semesters receive 12 equal monthly payments for the 9 months of service and maintenance fees (tuition), other mandatory fees, and health insurance for all 3 three semesters, including the summer. Students appointed to a 9-month appointment beginning in the spring semester have the option of receiving seven equal monthly payments for the January-July period or six equal payments for the February-July period. In both cases, maintenance fees (tuition), other mandatory fees, and insurance are provided for spring and summer semesters. Graduate students on 9-month appointments have no assistantship responsibilities in the summer semester.

Students appointed to 12-month or other appointments receive equal monthly payments for the months of the appointments and have assistantship responsibilities for the full period of the appointment. For these appointments, maintenance fees (tuition), other mandatory fees and differential tuition, if applicable, are provided only for those semesters included within the appointments (i.e., payment of maintenance fees (tuition) and other mandatory fees for summer semester requires an appointment which encompasses the summer semester in its entirety.) In some situations, a graduate assistant may be appointed for a period shorter than a year (e.g., a semester). Students on 12-month appointments are expected to work during all work days during their appointments, except when the University is closed (*holidays and administrative closings*).

**Graduate Teaching Assistants/Associate (GTA):** Graduate Teaching Assistants are appointed for a period of one semester to one year, with renewals possible as per the procedures outlined in "Application Procedure" in the next section. Renewals depend on satisfactory previous performance, progress toward academic degrees, and availability. GTAs without prior college teaching experience are *required* to participate in the *GTA Orientation* offered each fall by the Graduate School.

*Graduate Teaching Assistants* work under the direct supervision of faculty members and are assigned duties related to instruction. These duties include such activities as assisting in the preparation of lectures, leading discussion sections, conducting laboratory exercises, grading papers and keeping class records. Assistants may not be given primary teaching and/or evaluation responsibilities nor should they be given duties to support faculty research or those basically clerical in nature. GTAs must maintain at least a B average and be full-time graduate students to retain eligibility for department-supported assistantships.

*Graduate Teaching Associates* are advanced graduate students who have been given primary responsibility for teaching undergraduate courses, including the assignment of final grades. No other category of graduate assistant may be so charged. Graduate Teaching Associates may not be assigned primary responsibilities for teaching and student assessment in courses approved for graduate credit. Associates must have met the Southern Association of Colleges and Schools Commission on Colleges (*SACSCOC*) 18-credit hour guideline for teaching undergraduate courses.

GTAs are part of the UT Instructional Staff and shouldconduct themselves accordingly. This includes:

- Dressing appropriately.

- Showing up on time to all class/discussion sections (a few minutes early is recommended).
- Answering student emails in a timely and professional fashion.
- Answering faculty emails in a timely and professional fashion.
- Understanding that teaching is a major mission of the University; and therefore, to always give their best effort.
- Conducting themselves in a manner that positively represents UT.

**Graduate Research Assistants (GRA)**: Nutrition GRAs are funded by contracts or grants from specific businesses, government or other agencies, and foundations, approved projects funded by the Agricultural Experiment Station, or in some instances associated with the Departmentof Nutrition. GRAs are appointed from a period of one semester to one year, with renewal at the discretion of the faculty research advisor and/or the Department Head when department funds are used and are contingent on sufficient sources of funding.

The primary functions of GRAs in research are as follows:

- To work under the direction of faculty members in specified approved project areas.
- To contribute to specific research projects and, at the same time, acquire training in research techniques and methods.
- To work for the Department in a support capacity for their development.

**Assistantship Application Procedure**: The Departmental assistantship application priority deadline for GTA/GRA funding for the following academic year for new applicants to the graduate program is January 15. Students already enrolled in the graduate program who wish to apply for GTA/GRA funding *or* students who are already receiving financial assistance who want to apply for continued funding must complete the application for a GTA and/or a non-grant-funded GRA for current graduate students in Nutrition by December 15.

GTA/GRA awards are made by May of each year. Applications received after the December 15 deadline (current students) or the January 15 deadline (new applicants) are considered late but may be considered as determined appropriate. GRA assistantships are at the discretion of the faculty holding the funding or the Department Head if the funding source is the Department and may be assigned and evaluated on a semester-by-semester basis. Speak with your major advisor about potential GRA opportunities. A GPA of 3.0 is required to retain eligibility for department-supported assistantships.

**Additional Sources of Funding**: The College of Education, Health, and Human Sciences has scholarship funding available for graduate students. The application deadline is March 1 for the following year and the process with current form can be found *here*.

Additional information on financial assistance is available from Graduate School's Cost & Funding *webpage*. Graduate students are encouraged to begin seeking outside funding about a year preceding

the academic year for which funding is needed, as some deadline dates are very early. The Graduate Record Examination (GRE) may be required by external funding sources but is not required for admission to departmental programs.

**Evaluation Procedure:** The evaluation procedure for funding awarded through the Department's graduate assistantships is as follows:

- Applications are reviewed by the Department's Graduate Committee.
- The Graduate Committee meets to rank applicants for assistantships.
- The Graduate Committee makes recommendations to the Department Head on allocations of assistantships.
- Selected graduate assistantship recipients are contacted by the Graduate Program Coordinator by email to see if they remain interested in receiving the type of financialassistance offered.
- Recipients accept or decline the awards in a written response to the Department Head.

GRAs are awarded at the discretion of individual faculty members who have the appropriate funds.

## GRADUATION

The Graduate Hooding Ceremony is held at the end of Fall and Spring semesters only. Please click *here* for details about graduation. Click *here* for the Graduate School's Steps to Graduation. For a complete description of minimal requirements, see the current *Graduate Catalog* for Degree Program Requirements.

## ALUMNI

After completion of a degree, alumni are urged to notify the University, College, and Department of name, address, email address, and position changes so that the University can keep alumni informed of current events, while at the same time supply and obtain valuable information and data regarding our graduates and programs. We also encourage alumni to keep abreast of departmental activities by following departmental social media accounts.

# DEGREE REQUIREMENTS

## BS/MS AND MS

**Master's Committee***:* Master's committees are composed of the major advisor and at least two additional faculty members with the rank of Assistant Professor or above. An instructor may serve as a fourth member of the committee. The major advisor serves as committee chairperson. All members of the committee may be departmental faculty members unless the student has a minor. If the student has a minor, one member of the committee must be from the minor department. If the student has a second minor, one member of the committee also must be from the second minor department.

MS Committee serves the following functions:

- Assist the student in planning a program of coursework appropriate to the student's background and goals and in compliance with departmental and Graduate School policies. It is the student's responsibility to propose, for committee review, a timetable for development and completion of coursework and thesis research (Thesis option) or a project or other culminating experience (Project option).
- Provide guidance and critiques in the development and completion of the student's project and, for thesis option students, in writing the thesis proposal and thesis.
- Evaluate the student's performance on committed evaluated outcomes, i.e., thesis, project, and comprehensive exam. Students should consult with the *Graduate School website* to ensure all proper forms are provided to the committee at appropriate times.

## THESIS OPTION

- **Thesis Proposal*:*** The thesis proposal is a 2-part written document that includes two chapters. The first chapter should be a detailed literature review that provides a foundation for the study the student will be proposing. The second chapter should be a detailed description of the methodology they are proposing to use in the study. A proposal hearing, which the student should schedule for a 2-hour block of time with their committee, is designed to evaluate the proposal and guide the research process. At least 2 weeks in advance of the proposal hearing, the thesis proposal is submitted to all committee members. At the proposal hearing, the student formally presents the proposed research as an oral presentation to the student's committee members in a closed session. The presentation is expected to take 25-30 minutes. Upon conclusion of the presentation, committee members engage the student in further questions about the proposed research. The purpose of this hearing is to help the student refine the proposed research and to understand how to proceed further. Specifically, upon

conclusion of the proposal hearing the student's graduate committee members will make a recommendation from any of the following options:

- conduct the research as proposed;
- conduct the research with specific modifications as identified by the committee;
- re-write the proposal to address significant research concerns identified by the committee during the proposal hearing; or
- write a new proposal.

**Thesis**: Students pursuing this degree are required to have at least two semesters of Master's level research and thesis completion. The thesis is a written account of original research conducted by the Master's student under the direction of their major advisor and the faculty committee. It serves as the culminating experience for thesis students. The student research topic typically falls in the major advisor's research interests, which can be found in Section III. The student must enroll in NUTR 500 (variable credits) each term that they are planning research, collecting data, or writing the thesis. The student must be enrolled in 3 hours of NUTR 500 credit during the semester in which the final thesis is defended and approved. If the thesis is approved after the first deadline date for graduation during a certain term, but prior to the second deadline date, the student is not required to enroll in NUTR 500 and may graduate the next semester. The thesis must satisfy University requirements, as described on the Graduate School's Theses and Dissertations website, and it must be approved by the faculty committee and the Graduate School Thesis/Dissertation Consultant. The complete thesis, in a form approved by the major advisor, shall be distributed to all committee members at least two weeks before the date of the final oral examination/defense.

By the beginning of the semester in which the student plans to defend the thesis, the student must submit a preliminary draft of the thesis online in TRACE for review by the Coordinator of Student Services. Preliminary drafts do not need to be complete. Failure to submit a preliminary draft by the deadline may result in the thesis not being reviewed prior to the final deadline for acceptance in TRACE. For instructions on submitting the thesis, please visit the *submission page*. For questions about the submission process, please contact *thesis@utk.edu*

**Thesis Defense***:* After thesis research has been completed, each Master's thesis student must pass an oral examination in defense of their thesis. The examination in defense of the thesis is administered by the student's committee and is intended to evaluate the student's overall knowledge gained through completion of their coursework, research, and thesis. The thesis defense must be scheduled to occur with the student's major advisor and all members of the committee at least two weeks before the thesis deadline published in the *UT Graduate School Graduation Deadlines*. An abstract of the thesis in the form of the defense announcement should be sent to the Department's Graduate Program Coordinator two weeks in advance of the thesis defense. The email defense announcement should contain the thesis title, date, time, and place of the thesis defense, and all committee members' names. All graduate students and faculty are invited to attend an oral presentation of the thesis

research, which should be no more than 45 minutes in length, which includes time for audience questions.

Aside from requiring that the Chair be present at the student defense**s**, the Department of Nutrition follows the Graduate Catalog's policy on *Remote Participation in Oral Defense*.

The student must pass the oral examination/defense of their thesis work by the committee before the student can graduate with the MS degree (thesis option). The major professor must complete the *Report of Final Examination/Defense of Thesis/Project/Capstone- Master's or Specialist Degree* and obtain electronic or original signatures from the committee. The major advisor or another departmental representative must submit the form to the Graduate School before the thesis or final examination submission deadline.

An electronic copy of the approved form of the thesis must be submitted to *TRACE* and accepted by the Graduate School on behalf of the Graduate Council. Each thesis must be accompanied by the *Thesis/Dissertation Approval Form*. In addition, the students should either make plans with the major advisor for writing and publishing of their thesis research, be prepared to submit, or have submitted the manuscript for publication in a professional research journal.

The thesis itself is a 2-part written document that includes in the minimum: 1) detailed literature review as a foundation for the study, which is an updated version of Chapter 1 of the thesis proposal; 2) at least 1 manuscript expected for submission, submitted, in press, or published. The committee may request additional components (expanded methods appendix). The thesis must be distributed to all committee members at least 2 weeks prior to the oral thesis defense.

## PROJECT OPTION WITHOUT COMPREHENSIVE EXAM

### Project Development

***BS/MS Degree*** students in either of the 5-year programs in BNS or CN who pursue the Project without Comprehensive Exam option must obtain commitment from a BNS or CN faculty member, at the rank of Assistant Professor or higher, to be their major professor and chair their graduate committee after they have completed at least 90 credit hours of the 120 credit hours of coursework required for the BS degree. The full committee must be formed before completion of Term 7 in the BS program. During Term 8 of the BS program, students will follow the same processes as the MS Degree described below.

***MS Degree*** students in BNS and CN who pursue the Project without Comprehensive Exam option should work with their major professor to form their committee within the first four weeks of their first semester. During the first semester of graduate study, students will work closely with their major professor and their committee, as appropriate, to develop a project, which typically is a literature review, a short-term research project, or another scholarly endeavor. After the project has been determined, the student will email a synopsis to all committee members for their approval. The committee will email their approval or concerns, if not approved, within two weeks of receiving the email. If not approved, the student will address concerns and resubmit the revised synopsis for approval. When approved, the student will work closely with their major professor to complete the

project at least four weeks prior to the Report of Final Examination deadline in the term in which they plan to graduate. Upon completion of the project, the student will email the project outcome(s) to their committee members and will find a one-and-one-half-hour time block that works for all committee members.

**Project Presentation**: The student will work with the Graduate Program Coordinator to book a room for the presentation. The student will present their project to their committee and other faculty and students in the Department of Nutrition at least one week prior to the Report of Final Examination deadline. An announcement should be sent to the Department's Graduate Program Coordinator two weeks in advance of the project presentation. The email announcement should contain the project title, date, time, and place of the presentation, and all committee members' names. The project presentation should be no longer than 45 minutes in length, which includes time for audience questions. During the last portion of the one-and-one-half-hour block, the audience, except the committee, will leave so that the committee may ask the student additional questions, as necessary, and determine if the student's project earned a passing result.

If students do not complete their projects prior to coursework completion, they must enroll in at least one hour of NUTR 548 or 549.

Before the student can graduate with the MS degree (project option, without comprehensive exam), the student's project must receive a passing result by all committee members. The major professor will complete the *Report of Final Examination/Defense of Thesis/Project/Capstone- Master's or Specialist Degree* and obtain electronic or original signatures from the other committee members. The major advisor or another departmental representative must submit the form to the Graduate School before the submission deadline.

## PROJECT OPTION WITH COMPREHENSIVE EXAM

Students pursuing the Project with Comprehensive Exam option will complete an analytic field paper of the field experience in community nutrition, which is graded by the Block Field Coordinator, present a poster on the service-learning project completed during the field experience in community nutrition, which is assessed by all PHN faculty, and take a final comprehensive written examination, which is described in detail below. Detailed information regarding the field study in community nutrition is provided to students in the *NUTR 515: Field Study in Community Nutrition Handbook*, which is provided to PHN students annually in November.

**Comprehensive Exam*:*** For this option, students must pass a written comprehensive examination that covers competencies developed in coursework taken toward completion of the degree. The examination must be scheduled according to the established departmental deadline, which will be announced at the beginning of each semester. The examination consists of questions submitted by committee members.

One day (8 hours) will be scheduled for the examination each semester. The date will be determined by the Director of Graduate Studies no later than the end of the second week of each semester. The

examination will be scheduled approximately two weeks prior to the Report of Final Examination deadline.

It will be the student's responsibility to inform their major advisor of their intent to take the comprehensive exam during the first week of the semester when they plan to take the examination. The examination must be taken when coursework is completed or last semester of required coursework. The major advisor should give notice to committee members to submit questions no later than one week prior to the examination. It is the responsibility of the major advisor to contact faculty committee members outside the department for questions and to assemble the examination.

**Committee Responsibilities**: The two departmental committee members, which includes the major advisor and another faculty in the Department, will provide two questions that will test the student's competencies and applicability related to coursework completed in the represented area for inclusion in the examination. The major advisor will review submitted questions and decide on the appropriateness of each question. It is the major advisor's responsibility to resolve disputes over the submitted question(s). The student will answer one question from each committee member. In addition, the Director of the MPH program, the third committee member for all PHN students, will submit the third set of questions for the examination.

**Scoring of Comprehensive Exam:** A cumulative score of 80 is passing. If a student scores less than 70% on any portion of the exam, that portion of the exam will need to be repeated the following semester and the student will fail the comprehensive examination. Points will be accumulated on the examination according to the following scale:

35 – major advisor

35 – departmental committee member (from the major area)

30 – Public Health

For students with a second minor, points will be accumulated on the examination according to the following scale:

30 – major advisor

30 – departmental committee member (from the major area)

20 – Public Health

20 – minor, supporting or another departmental committee member

**Communication of Results**: The student is notified by the major advisor, in writing, of the examination results within two weeks following the date of the examination. The student and the committee may meet to discuss the examination. In case of failure, the student is given the opportunity to take a second examination, from all committee members or pertaining to those sections deemed insufficient (based on a committee decision), but this cannot be scheduled until the following semester. Results of

the second examination are final. Appeals may be made through the regular channels as described in the current Graduate Catalog in the "Grievances and Appeals" section.

If a project option master's student has not yet completed the comprehensive examination but needs to use university facilities or faculty time for an additional semester, then the student must enroll in NUTR 502 for at least one credit hour. This could occur, for example, when the student will be using university facilities or faculty time to remove an incomplete but will not be enrolling in a course. A project option student who has completed all degree requirements, except the comprehensive examination does not have to enroll in NUTR 502 but must pay a Graduate School examination fee.

### COURSEWORK ONLY WITHOUT COMPREHENSIVE EXAM OPTION

BS/MS students who pursue the Coursework Only Without Comprehensive Exam option in CN will complete the required coursework for the MS degree and will complete a required capstone experience in NUTR 544. These students must obtain commitment from a CN faculty member, at the rank of Assistant Professor or higher, to be their major professor. The student's major professor and the Director of Graduate Studies will sign the *Admission to Candidacy Masters or Specialist Degree (Course-Only, No Comprehensive Exam) form*; thus, no committee is formed for this option.

## MS IN CLINICAL NUTRITION AND DIETETICS

**Major advisor**: The director of the ACEND-accredited Graduate Program (GP) in Nutrition and Dietetics serves as major advisor for all students in the concentration. As this concentration is approved as a coursework-only option, students all take the same coursework to complete degree requirements and there is not a committee. The required capstone experience is completed by all students within NUTR 520. The director of the GP and the Director of Graduate Studies will sign the *Admission to Candidacy Masters or Specialist Degree (Course-Only, No Comprehensive Exam) form*; thus, no committee is formed for this option.

## PhD

**Doctoral Committee**: For general university requirements regarding who is eligible to serve on a PhD committee, see the Graduate School's *Guidelines for PhD Committee Service*. During the first semester in the doctoral program, or as soon as the topic area for the doctoral work has been identified, a doctoral student should discuss potential committee members with their major advisor.

By the beginning of the second year, the student should select potential faculty to serve on their doctoral committee. The student should meet with the potential faculty to discuss the proposed research project area to see if they are willing to serve on the committee. Prior to or at the initial meeting to plan the student's program of study (see below), the doctoral student should obtain signatures from all their doctoral committee on the Graduate School's PhD Committee Form. Once all signatures are obtained on the PhD Committee form, it is submitted to the Department of Nutrition for

approval by the Department Head. If approved by the Department Head, the Department of Nutrition Graduate Program Coordinator (*pcash1@utk.edu*) submits the form to the Graduate School for final approval.

The *Revise PhD Committee Form* and similar procedures are used for revision of a doctoral committee. Only the graduate student can initiate a revision to the doctoral committee. However, changes should be discussed with the major advisor prior to initiating the changes. Committees can only be revised due to extenuating circumstances, i.e., a committee member leaves the University, research topic area changes and a committee member does not have expertise in the new area, the committee member can no longer serve on the committee due to unforeseen circumstances, etc.

Committee Membership:

- The committee must have at least 4 members.
- At least 2 committee members must be UT tenured or tenure-track faculty members.
- At least one committee member must be from outside of the student's department/interdisciplinary program. This external member can be from outside UT.
- UT tenured or tenure-track faculty without a doctoral degree and other experts in the field may serve on PhD committees with department head approval.
- Emeritus faculty can serve on committees on which they are serving in that capacity at the time of retirement.

Requirements for Committee Chairs:

- Committee chairs must hold a doctoral degree.
- UT tenured, tenure-track, and joint faculty holding a doctoral degree may chair PhD committees.
- In cases when a department head believes an exception to the above is needed, the department head may appeal to the Dean of the Graduate School.
- The chair is typically from the student's department/interdisciplinary program, but department heads can make exceptions.
- UT employees holding a non-tenure track assistant professor, associate professor or professor title may co-chair committees if their appointment is within the student's major. (The other co-chair must be a UT tenured, tenure- track or joint faculty member.)
- Emeritus faculty can chair committees on which they are serving in that capacity at the time of retirement.

**Doctoral Coursework Requirements**: A minimum of 24 hours of graduate coursework, beyond the Master's degree, is required. A minimum of 12 of these 24 hours must be graded A-F. Exceptionally well-prepared students with demonstrated superior achievement may enter upon completion of the

baccalaureate degree, in which case a minimum of 48 hours of graduate coursework beyond the baccalaureate degree is required. A minimum of 30 of these 48 hours must be graded A-F.

## Comprehensive Exam

***Background:*** The preparation for and completion of the comprehensive exam are designed to be, in part, a learning experience that contributes to the professional development of the student as they enter PhD candidacy. It provides the student an opportunity to integrate information and knowledge to independently conceptualize a research design and to evaluate their ability to search and appraise the literature, identify gap(s), develop a research question, and detail the methodology needed to answer the research question.

***Logistics:*** The doctoral comprehensive exam, which consists of a preproposal, proposal, and oral examination, is given after all coursework for the degree has been completed or in the semester in which coursework will be completed, and before defending their dissertation proposal; this is typically before the start of the third year of doctoral work. The comprehensive examination must be passed at least one semester before graduation (not including semester of graduation). The student should enroll in NUTR 600 during the semester they will take the exam.

In the student's next to last semester of coursework or at least within the first two weeks of the semester in which the student is completing all required coursework, the student is responsible for initiating the scheduling of their comprehensive exam by emailing their major advisor with a written request. The major advisor must respond to the student's formal written request to take the comprehensive examination within 10 days of receipt of the request.

For the comprehensive exam, all PhD students will be asked to write a preproposal, a hypothetical proposal, and participate in an oral examination. The student's committee will determine the proposal style, depending upon the student's career goals. Most proposals will be written in styles required by the *National Institutes of Health (NIH) - Writing Tips* or United States Department of Agriculture's (USDA's) *Agriculture and Food Research Initiative (AFRI)*. In the minimum, the proposal should include the justification of a research question based upon a synopsis of peer-reviewed literature; a research question that addresses an identified gap in the synopsis; the rationale and significance, the methodology needed to test the research question; the rationale for decisions made regarding the selected methodology; a timeline for implementation of the methodology; and references. The methodology should be selected with no limitations on resources, and no budget will be requested with the proposal. The research question cannot be the dissertation topic, but it can be related to the dissertation topic.

Students should use the internet and other electronic resources for the preproposal and proposal, particularly in accessing peer-reviewed literature. The student cannot use any documents they have previously written for the preproposal or the proposal; nor can they obtain mentoring on the proposal from internal or external faculty, researchers, or other students. Citations are expected in the text with a reference list at the end of the documents, using *AMA Manual of Style: A Guide for Authors and*

*Editors*. All documents should be submitted as Word documents and scanned for plagiarism prior to submission. Prior to sharing the document with committee members, the major advisor will scan the document again for plagiarism.

If concerns of plagiarism are raised, the major advisor will meet with the student to discuss the issues. If minimal plagiarism is detected, i.e., a missing citation or quotation marks, the student must revise the document to address plagiarized content. If substantial plagiarism is detected, i.e., using verbatim phrases or sentences without quotations and citations, the major advisor will follow the process outlined in the University of Tennessee's *Student Code of Conduct,* including reporting the incident to the Office of Student Conduct and Community Standards (OSCCS) with a proposed academic penalty determined by the major advisor, Director of Graduate Studies, and the Department Head. The student cannot proceed with the comprehensive exam assignments until resolution from the OSCCS, which could result in dismissal from the Program. If complete plagiarism is detected, i.e., using artificial intelligence to generate the assignment, purchasing the assignment, using work from previous assignments, etc., the major advisor will report the incident to OSCCS and recommend dismissal from the Program. The student cannot proceed with comprehensive exam assignments until resolution from the OSCCS.

Although, under unusual circumstances, the committee reserves rights to alter the duration allowed for completion of the written comprehensive exam, typically, students will be given 1 week to complete the preproposal assignment and 6 weeks to complete the hypothetical proposal. Comprehensive exam and faculty response due dates will be set by the major advisor and emailed to the student and all committee members on 1 week prior to assignment of the preproposal; 11:59 pm is the default due date for all comprehensive exam assignments and faculty responses.

**Comprehensive Exam Assignments**

***Preproposal:*** The first assignment of the comprehensive exam is writing and submitting a 2-page preproposal, which includes 1) a summary statement, which is a concise paragraph of the research topic and how it will be addressed, 2) significance/relevance of the research topic, 3) research question, 4) a synopsis of the most relevant literature, 5) an overview of the proposed research design, and 6) a reference list of 5-7 relevant peer-reviewed articles published in the last five years. The pre-proposal is due 1 week after the assigned date. Typically, assigned on a Monday and due the following Monday at 11:59 pm.

The student's committee will provide input on the preproposal within 2 business days after submission. Committee members will evaluate the preproposal as: 1) meets expectations, 2) needs revisions, or 3) does not meet expectations. Committee members will send their feedback to the major advisor who will collate the responses and feedback; the major advisor will email the committee' decision and feedback, with all committee members copied. If revisions are required, the student will have 1 week to make the revisions and resubmit. If any committee member concludes that the preproposal does not meet expectations, the major advisor is responsible for convening a meeting

with all committee members within two weeks to determine if the student will need to make major revisions or begin the process again with a new topic. If the student's second submission does not meet expectations, the committee will meet to determine the next steps for the student, which may include additional coursework or research experience, but may include dismissal from the Program.

***Proposal:*** After the preproposal is approved, the 6-week proposal assignment begins. The student will be required to follow the format provided to them by their major advisor and must meet the deadline delineated in the comprehensive exam schedule set forth by their major advisor. Although clarifying questions may be asked of the major advisor and/or committee members, no questions related to content or to methodologies may be asked by the student. The student must submit the proposal as a Word document to the major advisor and committee by 11:59 pm on the due date.

***Oral Examination****:* The student is responsible for scheduling the oral examination, which should be at least two-hours long, by sending a scheduling poll as outlined in the examination schedule. The oral examination must be convened within two weeks of the proposal due date. Typically, the poll is sent the first week of the comprehensive exam period or before. The student is responsible for finding a suitable date and securing a room for the meeting by emailing an administrative assistant in the Department. The oral comprehensive exam provides the committee with an opportunity to clarify and probe into any information contained in the student's proposal and/or the student's knowledge and understanding of related information. The student will be asked to leave the room for committee deliberations on the examination outcome. After deliberations, the major advisor will ask the student to return to provide the examination outcome.

Decisions can include: 1) pass all comprehensive exam assignments; 2) rewrite the proposal, but do not retake the oral examination; 3) retake the oral examination, but do not rewrite the proposal; 4) rewrite a specific portion or portions of the proposal, but do not retake the oral examination; or 5) fail the comprehensive exam, including the proposal component and the oral examination. If the student fails any portion of the comprehensive exam, they will have only 1 additional opportunity for a second comprehensive exam in the following semester. If the second comprehensive exam is failed, the student will be dismissed from the Program. If the student opted for a master's bypass, they would be able to finish the required coursework for the master's degree and complete a thesis project or comprehensive exam to graduate with a Master of Science degree.

**Dissertation Proposal:** The dissertation proposal is a 2-part written document that includes: 1) detailed literature review as a foundation for the study; and 2) the proposed methods for the dissertation research. A proposal hearing is designed to evaluate the proposal and guide the research process. This is to be scheduled after successful completion of the Comprehensive Examination (above). It is the student's responsibility to find a date and time that works for all committee members and then to secure a room for the proposal with departmental administrative staff. At least 2-weeks in advance of the proposal hearing, the dissertation proposal is submitted to all committee members and an announcement of the proposal hearing, which includes the candidate's name, title of the dissertation proposal, and committee members' names, is sent to the Graduate Program Coordinator, so it can be

forwarded to all faculty and graduate students in the Department of Nutrition. At the proposal hearing, the student presents the proposed research as an oral presentation to the student's committee members, other Department of Nutrition faculty and graduate students for 25-30 minutes with 10-15 minutes for questions. Upon conclusion of the presentation, invited faculty and graduate students are allowed to ask questions about the proposed research. Upon conclusion of this question-and-answer period, the invited faculty and graduate students are requested to leave the proposal hearing; then the remainder of the hearing is conducted in a closed session with the student and their committee members. In this closed session, committee members engage with the student in further questions about the proposed research. The purpose of this hearing is to help the student refine the proposed research and to understand how to proceed further. Specifically, upon conclusion of the proposal hearing the student's graduate committee members will make a recommendation from any of the following options: 1) conduct the research as proposed; 2) conduct the research with specific modifications as identified by the committee; 3) re-write the proposal to address significant research concerns of the committee identified during the proposal hearing; or 4) write a new proposal.

**Dissertation:** Students pursuing this degree are required to have at least 24 credits of dissertation research and dissertation completion. The dissertation is a written account of original research conducted by the Doctoral student under the direction of their major advisor and the faculty committee. It serves as the culminating experience for doctoral students. The student research topic typically falls in the major advisor's research interests, which can be found in Section III. Doctoral students are required to enroll in NUTR 600 (minimum 3 hours) continuously from the time the doctoral research proposal is approved, admission to candidacy is accepted, or enrollment in NUTR 600 is begun, whichever comes first, including the semester in which the dissertation is accepted by the Graduate School. Leaves of absence for no more than 6 semesters may be granted under certain circumstances. All doctoral students are required to complete a minimum of 24 credit hours of NUTR 600.

The dissertation must satisfy University requirements as explained in the Graduate School's Theses and Dissertations *website*, and it must be approved by the faculty committee and the Graduate School Thesis/Dissertation Consultant. The complete dissertation, in a form approved by the major advisor, shall be distributed to all committee members **at least two weeks** before the date of the final oral examination/defense.

By the beginning of the semester in which the student plans to defend the dissertation, the student must submit a preliminary draft of the dissertation online in TRACE for review by the Coordinator of Student Services. Preliminary drafts do not need to be complete. Failure to submit a preliminary draft by the deadline may result in the dissertation not being reviewed prior to the final deadline for acceptance in TRACE. For instructions on submitting the dissertation, please visit the *submission page*. For questions about the submission process, please contact *thesis@utk.edu*

**Manuscripts**: It is recommended that before graduation, students should either have submitted, be prepared to submit a manuscript, or make plans with the major advisor for the writing and publishing

of research paper(s) on the dissertation research work. A primary journal(s) should be selected to which the publication(s) will be submitted as well as one or two alternate journals. The major advisor will be a co-author and approve the paper(s) prior to submission to the journal. The plans should include a schedule with target dates for writing and submitting the paper(s). When possible, plans also should be developed by the student and major advisor for submission of paper(s) for presentation at national professional association meeting(s).

**Dissertation Defense:** Each doctoral student must pass an oral examination after completion of their coursework, research, and dissertation. The examination is administered by the student's entire committee and must be scheduled using the Graduate School's Schedule of Dissertation/Capstone Defense form and through the Departmental office at least two weeks before the defense deadline published by the Graduate School. The dissertation defense should be scheduled for a minimum of 2 hours. The purpose of the oral examination is to evaluate the student's knowledge in the areas of their major and related areas as the student's committee specifies. The date of the examination is also announced publicly by the Graduate School. An announcement of the defense hearing, which contains the dissertation title, candidate's name, committee members' names, date, time, and location of the defense, along with an abstract from the dissertation, is sent to the Department's Graduate Program Coordinator (pcash1@utk.edu) so it can be forwarded to the College's email distribution list.

At the defense hearing, the student presents the dissertation to the student's committee members, other Department faculty and graduate students, and other attending faculty and students from the College and University. The presentation should be no more than 45 minutes in length, which includes time for audience questions. Upon conclusion of this question-and-answer period, the invited faculty and graduate students are requested to leave the defense hearing; then, the remainder of the hearing is conducted between the student and their committee members. In this closed session, committee members engage with the student in further questions about the dissertation. Specifically, upon conclusion of the defense hearing the student's graduate committee members will make a recommendation from the following options: 1) Pass – submit dissertation as is; 2) Pass – submit dissertation with revisions recommended by committee and reviewed by main advisor only; 3) Rewrite the dissertation to address significant concerns the committee identified in the defense hearing and repeat defense hearing with committee members only; or 4) Fail. Students should consult the Graduate School *website* to ensure all proper forms are brought to the defense.

Aside from requiring that the Chair be present at the student defense**s**, the Department of Nutrition follows the Graduate Catalog's policy on *Remote Participation in Oral Defense*.

The student must pass the oral examination/defense of their dissertation work by the committee before the student can graduate with the PhD degree. The student must complete the *Report of Final Examination/Defense of Thesis/Project/Capstone- Master's or Specialist Degree* and obtain electronic or original signatures from the committee. The major advisor or another departmental representative must submit the form to the Graduate School before the dissertation or final examination submission deadline.

An electronic copy of the approved form of the dissertation must be submitted to *TRACE* and accepted by the Graduate School on behalf of the Graduate Council. Each dissertation must be accompanied by the *Thesis/Dissertation Approval Form*.

The dissertation itself is a 2-part written document that includes in the minimum: 1) detailed literature review as a foundation for the study, which is an updated version of Chapter 1 of the dissertation proposal; 2) at least 1 manuscript expected for submission, submitted, in press, or published. The committee may request additional components (expanded methods appendix). The dissertation must be distributed to all committee members at least 2 weeks prior to the oral dissertation defense.

# NUTRITION GRADUATE PROGRAMS

## BIOMEDICAL NUTRITION SCIENCE (BNS)

The BNS concentration focuses on the biochemical, cellular, genetic, and molecular basis of the role of diet in improving health and in preventing and treating chronic diseases, such as obesity, diabetes, cancer, and cardiovascular disease. This program concentrates on:

- Defining the molecular basis of diet-disease relationships;
- Identifying novel genes and molecular pathways involved in chronic diseases, resulting in the development of novel intervention targets;
- Determining the effects of dietary patterns and/or specific nutrients on gene expression and function; and
- Determining the effects of genotype on individual nutritional needs.

Research in the BNS program area is directed towards optimizing diet for the prevention and management of chronic diseases and individualizing nutritional approaches to compensate for specific genetic or inter-individual differences in cellular function, resulting in "tailoring" based upon genetic profile(s). The mission of the BNS concentration is to promote an understanding of the relationship between nutrition and disease, through conducting basic nutrition science research. Our program's goals are to prepare students for excellent careers and professional opportunities in the applied, industrial, research, and academic health sectors.

The Biomedical Nutrition Science concentration has the following degree options:

1. BS/MS (thesis option or project without comprehensive exam option)
2. MS (thesis option or project without comprehensive examination option)
3. PhD

**BS/MS Degree**: Students in the BNS accelerated degree program can choose from a project or a thesis option, based on their original research. Those who choose the thesis option will begin working on their research project no later than the beginning of their senior year of undergraduate studies by enrolling in NUTR 493 and/or NUTR 499. For each student in the program, a graduate advisory committee composed of a minimum of three faculty members must be established before the Fall semester Senior year, which is fall semester of the senior year.

To be considered for conditional admission to the program:

- A student must be a declared Nutrition major, BNS Concentration, with a minimum GPA of 3.30, must have completed at least 15 credit hours of Nutrition courses, and must have

completed at least 90 credit hours of the 120 credit hours of coursework required for the BS degree with a major in Nutrition.

- A student must provide three letters of support from Department of Nutrition faculty members.
- A student must obtain a commitment from a BNS faculty member to serve as their graduate advisor (major advisor) and as the chair of their graduate committee.

The Department may consider other relevant factors such as an applicant's work experience and level of maturity before conditionally admitting a student to the BS/MS program. Conditional admission of a student into the 5-year BS/MS program must be approved by both the Department of Nutrition and the Graduate School. Students will be typically informed of the outcome of their application before they start their senior year of undergraduate study.

Any graduate course taken before satisfying all requirements for the BS degree must be approved by the student's graduate advisory committee, the Director of Graduate Studies, and the Graduate School. These graduate courses must be identified in advance in consultation with the undergraduate advisor and the graduate advisory committee.

A student that is conditionally admitted to the BS-MS program may complete up to 9 credit hours of graduate level coursework during the student's undergraduate study and apply those 9 graduate credit hours to satisfy both the BS degree requirements and also the MS degree requirements, provided that these graduate credit hours were approved by both the Department and by the Graduate School.

**MS in BNS**

***Thesis Option****:* Master students in the BNS program should discuss with their major advisor the thesis option. In general, students will be required to present and get the research proposal approved by their committee during the thesis proposal hearing and write a thesis on their research project. In some cases, the research project may need to get their proposed research approved by the Institutional Review Board, if the research involves human subjects, or the University's Institution Animal Care and Use Committee, if the research involves animals. Then the student will carry out the proposed study, write the thesis, and present the study results at the thesis defense.

***Project Option without comprehensive exam***: In MS Project option without comprehensive exam, the student's major advisor and two additional faculty members will assist the student in planning a project appropriate to the student's goals and in compliance with departmental and Graduate School policies. The project may include literature reviews or other scholarly endeavors approved by their committee.

Table 3. Course Requirements for BNS MS Programs

| MS Thesis Option[1] | MS Project Option |
|---|---|
| NUTR 511 – Advances in Carb/Lipids/Protein Metabolism (4) | NUTR 511 – Advances in Carb/Lipids/Protein Metabolism (4) |
| NUTR 512 – Advances in Vitamins and Minerals (3) | NUTR 512 – Advances in Vitamins and Minerals (3) |
| NUTR 543[2] – Research Methods (3) | NUTR 543[2] – Research Methods I (3) |
| BCMB 440[2] – General Physiology (3) | NUTR 548 – Directed Study in Nutrition (3) |
| Graduate level statistics (3) | BCMB 440[2] – General Physiology (3) |
| NUTR 500 – minimum 6 | Graduate level statistics (3) |
| Other Elective Courses[3] (8) | Other Elective Courses[3] (11) |

[1]*In addition to the course work (30 credit hours required), the student in this program option must complete a thesis research project. A thesis proposal hearing is required prior to the beginning of the project. A thesis defense is required upon completion of the thesis.*

[2]*Appropriate substitutions for NUTR 543 and BCMB 440 if required, must be approved by the Director of Graduate Studies.*

[3]*Other Elective Courses: Students may choose from the following list upon consulting with their graduate advising committee: NUTR 548 (variable credit hours), NUTR 549 (variable credit hours), NUTR 618 (3 credit hours), NUTR 621 (3 credit hours), NUTR 626 (3 credit hours), NUTR 645 (2 credit hours), and NUTR 655 (3 credit hours).*

**PhD Degree:** PhD graduate students work closely with their major advisor and their graduate committee on an original, independent research project and completed dissertation. Doctoral study in the BNS concentration prepares the student for research and/or teaching positions in institutions of higher education, government, or industry. See the current Graduate Catalog for overall University requirements.

***Course Requirements***: A minimum of 72 graduate credit hours beyond the bachelor's degree or a minimum of 48 graduate credit hours beyond the Master's. Exceptionally well-prepared students with demonstrated superior achievement may enter upon completion of the baccalaureate degree, in which case a minimum of 48 hours of graduate coursework beyond the baccalaureate degree is required. A minimum of 30 of these 48 hours must be graded A-F. In either case, an original nutrition research project with at least 24 hours of dissertation work (NUTR 600) is required.

Nutrition Course Requirements (15 credit hours): NUTR 511 (4), NUTR 512 (3), NUTR 543 (3), NUTR 626 (3), and NUTR 645 (2).

Non-Nutrition Course Requirements (10 credit hours): BCMB 440 (3), LFSC 520 (4), and an additional 3 credit graduate course (graded A-F) outside the NUTR department, as identified by major advisor and approved by the Departmental Director of Graduate Studies. Appropriate substitutions for NTR 543, NTR 645, LFSC 520 or BCMB 440, if required, must be approved by the Departmental Director of Graduate Studies. Please see the APPENDICES of the graduate handbook for a list of potential graduate courses. 6 credit hours of graduate-level statistics.

Additional courses at the graduate level, exclusive of dissertations, to make up any credit hour deficiencies. Please see the appendices of the graduate handbook for a list of potential graduate courses.

A minimum of 24 credit hours of dissertation (NUTR 600).

Table 4. Course Requirements for BNS PhD

| **BNS PhD Required Coursework** |
|---|
| NUTR 511 – Advances in Carbohydrate, Lipid and Protein Metabolism (4) |
| NUTR 512 – Advances in Vitamin and Mineral Metabolism (3) |
| NUTR 543 – Research Methods (3) |
| NUTR 626 – Life Course Nutrition (3) |
| NUTR 645 – Advanced Research Methods (2) |
| BCMB 440 – General Physiology (3) |
| *LFSC 520 – Genome Science and Technology (4) |
| Additional 3 graduate credit hours outside the NUTR department |
| STAT (6) or other appropriate statistics courses |
| NUTR 600 – Doctoral Research and Dissertation (24) |
| Additional course at the graduate level to make up for any credit hour deficiencies (up to 16 credit hours) as identified by major advisor and approved by the Departmental Director of Graduate Studies; this may not apply to students who have completed a Master's degree prior to beginning the Doctorate program. |

*Appropriate substitutions for LFSC 520, NUTR 645, or BCMB 440, if required, must be approved by the graduate advising committee and the Departmental Director of Graduate Studies.

At least 9 credit hours taken to fulfill requirements must be at the 600-level.

# COMMUNITY NUTRITION (CN) AND PUBLIC HEALTH NUTRITION (PHN)

Community nutrition focuses on individual and interpersonal-level services, programs, and interventions that aim to improve health trajectories among individuals, families and/or priority groups in the community through changes in knowledge, self-efficacy, perceptions, and nutrition-related health behaviors.

Public health nutrition combines nutrition and public health evidence-based practices to develop programs and services and policy, systems, and environmental changes to improve health trajectories of communities and priority populations.

The Community and Public Health Nutrition CPHN program's mission is to promote an understanding of community and public health nutrition, including assessment, implementation, evaluation, and policy development for the health and well-being of individuals, families, and communities. The CPHN program's goals are as follows:

- Prepare community and public health nutrition leaders who are sensitive to the impact of cultural diversity in fulfilling nutrition needs of individuals, families, and communities, and, particularly, maternal and child populations.
- Provide nutrition research, instructional programs, and field experiences, that have a focus on community and public health nutrition, implementation science, and program evaluation.
- Integrate nutrition science, public health, and social/behavioral sciences across didactic and experiential curricula, research, community engagement, and service experiences to enhance the nutrition-related health of communities and the public.
- Enhance understanding of how social determinants influence nutrition-related health, and the importance of addressing structural issues to enhance health equity.

**The Community and Public Health Nutrition Programs have the following degree options:**

1. BS/MS with a concentration in Community Nutrition (CN) (project without comprehensive exam option or course-only without comprehensive exam option);
2. MS with a concentration in CN (project without comprehensive exam option);
3. MS with a concentration in Public Health Nutrition (PHN) (thesis option or project option (includes a comprehensive examination);

4. Dual MS-MPH, MS with a concentration in PHN and Master of Public Health (MPH) with a concentration in Community Health Education (CHE), Epidemiology (EPI), or Health Policy & Management (HPM); and
5. PhD in Nutritional Sciences with a concentration in Implementation Science in Community Nutrition (ISCN)

**BS/MS in CN**: The CN BS/MS accelerated degree program is offered as a project without comprehensive exam option and course-only without comprehensive exam option. The project option should begin during students' undergraduate studies by enrolling in NUTR 493 with CPHN faculty. For each student in the program, a graduate committee composed of a minimum of three faculty members must be established before completion of Term 7, fall semester of the senior year.

To be considered for conditional admission to the program:

- A student must be a declared Nutrition major, CN Concentration, with a minimum GPA of 3.30, must have completed at least 15 credit hours of Nutrition courses, and must have completed at least 90 credit hours of the 120 credit hours of coursework required for the BS degree with a major in Nutrition.
- A student must provide three letters of support from Department of Nutrition faculty members.
- A student must obtain a commitment from a CPHN faculty member to serve as their graduate advisor, i.e., major advisor, and as the chair of their graduate committee.
- The Department may consider other relevant factors such as an applicant's work experience before conditionally admitting a student to the BS/MS accelerated degree program (Community Nutrition Concentration). Conditional admission of a student into the 5-year BS/MS accelerated degree program must be approved by both the Department of Nutrition and the Graduate School. Students will be typically informed of the outcome of their application before they start their senior year of undergraduate study.

Any graduate course taken before satisfying all requirements for the BS degree must be approved by the student's graduate advisory committee, the Community Nutrition/Pubic Health Nutrition Graduate Program Coordinator, the Department Director of Graduate Studies, and the Graduate School. These graduate courses must be identified in advance in consultation with the undergraduate advisor and the graduate advisory committee.

A student that is conditionally admitted to the BS-MS accelerated degree program may complete up to 9 credit hours of graduate level coursework during the student's undergraduate study and apply those 9 credit hours to satisfy both the BS degree requirements and also the MS degree requirements, provided that these graduate credit hours were approved by both the Department and by the Graduate School.

**MS in CN:** A master's degree in Nutrition with the CN concentration from the University of Tennessee can lead to excellent careers and professional opportunities in the public, voluntary, and private health

sectors. This degree prepares students to become experts in developing, implementing, and evaluating community nutrition programs. Students in this concentration will be trained in competencies needed to become a Certified Health Education Specialist (CHES) and to work in the community in a variety of roles, including as nutrition educators, WIC nutritionists, worksite health and wellness coaches, wellness program coordinators and settings that may include local and metropolitan health departments, community agencies, and in Extension programs, such as the Supplemental Nutrition Assistance Program Education Program (SNAP-Ed) or the Expanded Food and Nutrition Education Program (EFNEP).

In addition to departmental requirements provided on the Department of Nutrition page of this catalog, prerequisites to this program include completion of undergraduate human nutrition, statistics, and physiology courses. For those lacking only the undergraduate nutrition course prerequisite, the student will be required to complete this or a similar class upon admission to our program.

The MS in CN is designed as a distance education or Knoxville campus program consisting of 30 graduate credit hours. Students pursuing this degree will complete a systematic review as part of their coursework, which fulfills the project requirement. Table 5 lists the required coursework.

Table 5. Course Requirements for the CN MS Program

| CN MS Required Coursework |
|---|
| NUTR 503 – Community Nutrition Assessment (2) |
| NUTR 504 – Community Nutrition Intervention and Evaluation (2) |
| NUTR 507 – Introduction to Theories of Health Behavior Change in Public Health Nutrition (3) |
| NUTR 510 – Applied Human Nutrition (3) |
| NUTR 514 – Advanced Community Nutrition Practicum (2) |
| NUTR 540 – Public Policy in Action (3) |
| NUTR 543 – Research Methods (3) |
| NUTR 544 – Writing a Systematic Review (3) |
| NUTR 626 – Life Course Nutrition (3) |
| Approved Electives (6) |

**MS in PHN:** The MS degree with a concentration in PHN is designed as a Knoxville campus program

with both asynchronous, online and face-to-face coursework, along with nutrition practicum courses in collaboration with community and public health nutrition agencies. The program focuses on community- and population-level health policies, systems and environmental change interventions, services, and programs. The PHN curriculum is consistent with the curricular guidelines established by the Association of Graduate Programs in Public Health Nutrition, Inc. These guidelines build upon knowledge and competency requirements established by the Accreditation Council for Education in Nutrition and Dietetics (ACEND) and, therefore, provide a specialization in public health nutrition. This emphasis at UT is provided by a major in nutrition and supporting coursework in public health. This is accomplished through both didactic coursework, practicum experiences, and block field experiences. Didactic coursework focuses on nutrition with public health applications, public health, and social/behavioral/sciences and education. The block field experience is required for all options of the MS in PHN and is described in more detail in the Program's Handbook for Field Study in Community and Public Health Nutrition.

***Thesis Option**: S*tudents complete a thesis as partial fulfillment of the degree requirements for the MS.

***Project Option**:* Students complete a block field experience, which includes completing the analytical field paper of the block field experience (NUTR 519) and a poster presentation for NUTR 515, as partial fulfillment of the degree requirements for the MS.

Table 6. Course Requirements for PHN MS Program Thesis Option (43 credit hours) and Project Option (40 credit hours)

| **PHN MS Required Coursework** |
|---|
| NUTR 503 – Community Nutrition Assessment (2) |
| NUTR 504 – Community Nutrition Intervention and Evaluation (2) |
| NUTR 507 – Introduction to Theories of Health Behavior Change in Public Health Nutrition (3) |
| NUTR 509 – Graduate Seminar in Public Health (1) |
| NUTR 510 – Applied Human Nutrition (3) |
| NUTR 514 – Advanced Community Nutrition Practicum (2) |
| NUTR 515 – Field Study in Community Nutrition (6) |
| NUTR 519—Analysis of Practice in Community Nutrition (3) *(Not required for Thesis Option)* |
| NUTR 540 – Public Policy in Action (3) |

| |
|---|
| NUTR 543 – Research Methods (3) |
| NUTR 626 – Life Course Nutrition (3) |
| PUBH 520 – Health Systems, Policy, and Leadership (3) |
| PUBH 530 – Biostatistics (3) |
| PUBH 540 – Epidemiology (3) |
| NUTR 500 – Thesis (6) (Not required for Project Option) |

**MS-MPH Dual Degree:** This program is designed to meet the needs of students who are interested in the benefits of majors in both nutrition and public health. A dual degree candidate must satisfy requirements for both the MS-PHN concentration and the MPH degree, as well as requirements for the dual program. The MPH component of the dual degree is completed with a concentration in Epidemiology (Epi), Health Policy and Management (HPM) or Community Health Education (CHE), as designed by the Public Health program. The MPH concentration preference is indicated by the student on the MPH program application. All candidates for dual degrees must successfully complete the required course and non-course requirements (Table 7). Ten credit hours from the MS-PHN concentration count as part of the 20 total credit hours of Foundation Courses for the MPH. Six NUTR credit hours of required courses for the MS-PHN concentration count as electives for the MPH, excluding NUTR 509 and NUTR 515. The block field experience, NUTR 515, counts as the Applied Practice Experience for the MPH degree.

***Thesis Option**: S*tudents complete a thesis as partial fulfillment of the degree requirements for the MS-PHN concentration and a written comprehensive exam as partial fulfillment of the degree requirements of the MPH degree.

***Project Option**:* Students complete a block field experience, which includes completing the analytical field paper of the block field experience (NUTR 519) and a poster presentation for NUTR 515, as partial fulfillment of the degree requirements for the MS-PHN concentration, and a written comprehensive examination for both the MS-PHN concentration and the MPH degree.

Master students in the MS-MPH dual program, regardless of MPH track selected, should talk with their major advisor in the Department of Nutrition about the thesis or project options as well as the block field experience. As these are governed by the MS degree requirements, these are the same as those described for the MS PHN program, above. Importantly, ALL MPH students will sit for the MPH comprehensive exam and should discuss this expectation with their major advisor. For more information on the CHE, EPI, or HPM, please see the Department of *Public Health's website*.

Table 7. Course Requirements for the Dual MS-MPH Program Thesis Option (63 credit hours) and Project Option (60 credit hours)

| MS-MPH Required Coursework |
|---|
| NUTR 503 – Community Nutrition Assessment (2) |
| NUTR 504 – Community Nutrition Intervention and Evaluation (2) |
| NUTR 507 – Introduction to Theories of Health Behavior Change in Public Health Nutrition (3) |
| *NUTR 509 – Graduate Seminar in Public Health (1) |
| NUTR 510 – Applied Human Nutrition (3) |
| NUTR 514 – Advanced Community Nutrition Practicum (2) |
| NUTR 515[1] – Field Study in Community Nutrition (6) |
| NUTR 540 – Public Policy in Action (3) |
| NUTR 626 – Life Course Nutrition (3) |
| PUBH 509 – Graduate Seminar in Public Health (1) |
| PUBH 510 – Environmental Health (3) |
| *PUBH 520 – Health Systems, Policy, and Leadership (3) |
| *PUBH 530 – Biostatistics (3) |
| PUBH 537 – Fundamental of Program Evaluation (3) |
| *PUBH 540 – Epidemiology (3) |
| PUBH 552 – Assessment and Planning (3) |
| NUTR 500 – Thesis (6) (Not required for Project-only) |
| MPH Concentration Courses (10) |
| Non-course requirements |

*Thesis*: written comprehensive exam for MPH only, completion of thesis proposal, thesis, and thesis defense.

*Project*: written comprehensive exam for MS and MPH, block field experience service-learning project, poster presentation, and analytical field paper.

*~Appropriate substitutions, for any required class, must be approved by the student's committee.*
*^Six NUTR credit hours of required courses for the MS PHN concentration count as electives for the MPH*
**These courses (10 credit hours) count as part of the 20 total credit hours of Foundation Courses for the MPH.*
*[1]The field study in community nutrition (block field experience counts as the Applied Practice Experience for the MPH degree*

**PhD in ISCN**: PhD graduate students work closely with their major advisor and their graduate committee on an original, independent research project and completed dissertation. Doctoral study in the ISCN concentration prepares the student for research, teaching, and/or advanced-level practice in institutions of higher education, government, or the public and private sectors. See the current *Graduate Catalog* for overall University requirements.

***Prerequisites for Admission***: An introductory nutrition course, a statistics course, and a human physiology course.

***Course Requirements***: A minimum of 72 graduate credit hours beyond the Bachelor's degree or a minimum of 48 graduate credit hours (24 of which must be graduate coursework and 24 of which must be NUTR 600 dissertation work) beyond the Master's. See current *Graduate Catalog* for overall University requirements. The coursework requirements can also be found in Table 8.

Required Courses (14 credit hours): NUTR 543 (3), NUTR 624 (3), NUTR 626 (3), NUTR 645 (2) and select one ESM 577 or ESM 677 (3)

A minimum of 10 credits from the following list of approved electives or other courses approved by the graduate committee: ESM 533 (3), ESM 560 (3), KNS 535 (3), KNS 635 (3), PUBH 650 (3), PUBH 656 (3).

Additional courses at the graduate level, exclusive of dissertation, to make up any credit hour deficiencies (up to 24 credit hours) as identified by major advisor and approved by the Departmental Director of Graduate Studies; this may not apply to students who have completed a Master's degree prior to beginning the Doctorate program.

A minimum of 24 credit hours of dissertation (NUTR 600)

Table 8. Course Requirements for ISCN Program

| ISCN Coursework (*Required Core) |
|---|
| NUTR 543 – Research Methods (3)* |
| NUTR 624 – Public Health Nutrition Systems, Programs, and Services (3)* |
| NUTR 626 – Life Course Nutrition (3)* |
| NUTR 645 – Advanced Research Methods (2)* |
| ESM 577 – Statistics in Applied Fields I (3)* **OR** ESM 677 – Statistics in Applied Fields II* |
| NUTR 600 – Doctoral Research and Dissertation (24) |
| **Cognates to Select from as Advised by Committee-** |
| ESM 533 – Program Evaluation I (3) |
| ESM 560 – Evaluation Designs and Data Collection Methods (3) |
| KNS 535 – Health and Exercise Psychology (3) |
| KNS 635 – Physical Activity and Positive Health (3) |
| PUBH 650 – Dissemination and Implementation Science (3) |
| PUBH 656 – Comparative Theories in Health Behavior (3) |
| Additional course at the graduate level to make up for any credit hour deficiencies (up to 24 credit hours) as identified by major advisor and approved by the Departmental Director of Graduate Studies; this may not apply to students who have completed a Master's degree prior to beginning the Doctorate program. |

# CLINICAL NUTRITION AND DIETETICS (CND)

The Clinical Nutrition and Dietetics (CND) program concentration is the culmination of the ACEND-accredited Graduate Program in Nutrition and Dietetics (GP) that prepares graduates for careers in dietetics. The master's component of the program is a coursework only, non-thesis option, with a course-based capstone experience embedded within NUTR 520. The program integrates coursework with approximately 1,200 hours of supervised experiential learning and is accredited to accept up to 20 students per year. Graduates are eligible to take the national credentialing examination to become Registered Dietitian Nutritionists (RDNs) and practice in a wide range of areas including general acute care practice with adults or children, specialty practice in diabetes, cancer, weight management and bariatrics, disordered eating, dialysis, sports nutrition, community nutrition, long-term care, management settings such as healthcare or higher education foodservice, and many others.

Students applying to or enrolled in the ACEND-accredited Graduate Program in Nutrition and Dietetics (Clinical Nutrition and Dietetics concentration) should refer to the *Guide to ACEND-Accredited Nutrition and Dietetics Programs at The University of Tennessee* regarding program-specific prerequisites and application procedures as well as policies and procedures specific to ACEND-accredited programs.

The mission of the ACEND-accredited Graduate Program in Nutrition and Dietetics (GP), which includes the CND, is to effectively integrate didactic and experiential learning in a program that culminates in a graduate degree that effectively prepares graduates for evidence-based nutrition and dietetics practice, practice-based research, and professional mentorship and leadership as RDNs in an interprofessional healthcare environment to optimize the nutritional health of individuals, families and communities. Our program goals are as follows:

- The integrated didactic and experiential learning curriculum will prepare graduates for effective evidence-based clinical nutrition and dietetics practice as credentialed Registered Dietitian Nutritionists.
- The program will prepare graduates to be effective members of an interprofessional healthcare team.
- The program will prepare graduates for mentoring and leadership roles in nutrition and dietetics.

Note: The department is in the process of transitioning the format formally to a combined accelerated BS/MS program or stand-alone two-year MS option. If approved, this is anticipated to go into effect in the fall of 2024.

**MS in CND**: The MS degree with a concentration in CND is offered as an intensive coursework-only option with a course-based capstone experience embedded within NUTR 520. It is the second year of the ACEND-accredited two-year program that begins with the senior year of undergraduate studies at UT Knoxville. Courses are primarily face-to-face, and a majority are practicum-based, with students completing approximately 900 hours of supervised experiential learning during the graduate year.

These experiences are predominantly in clinical sites, including progressively independent experience in providing medical nutrition therapy through nutrition education and counseling to clients in Cherokee Health Systems clinics. Other major practicum experiences include hospital-based acute care, community, and healthcare foodservice through various partnerships throughout the Knoxville area. Students also could focus on specialty practice as availability permits in areas including acute care pediatrics, bariatrics, critical care, diabetes, dialysis, disordered eating, food allergies, gastroenterology, oncology, and sports nutrition.

To be considered for admission to the program, applicants must apply in the summer prior to senior year to graduate study that will begin during the following summer term. Senior-level coursework provides critical foundation for the graduate year and accepted students enroll in additional required courses during senior year. Current admission requirements are as follows:

Completion of the BS in Nutrition, Dietetics concentration, at the University of Tennessee with the inclusion of HTM 445 and NUTR 426. As noted above, the department is in the process of transitioning the format formally to a combined accelerated BS/MS program as well as a stand-alone two-year MS option. If approved, this change is anticipated to go into effect in the fall of 2024.

Submission of academic transcripts, a personal statement delineating professional goals, and an interview are considered in the application process. The GRE is not required.

The CND concentration consists of 30 graduate credit hours. Students pursuing this degree will complete a research-related project as part of NUTR 520, which meets the course-based capstone requirement. Coursework for the graduate portion of the program is shown in Table 9.

Table 9. Course Requirements for the CND MS Program

| CND MS Required Coursework |
|---|
| AGNR 480 – How to Feed the World (3) |
| NUTR 503 – Community Nutrition Assessment (2) |
| NUTR 504 – Community Nutrition Intervention and Evaluation (2) |
| NUTR 513 – Community Nutrition Practicum (3) |
| NUTR 514 – Advanced Community Nutrition Practicum (2) |
| NUTR 516 – Clinical Practice Experience (4) |
| NUTR 520 – Clinical Nutrition Outcomes Data Analysis and Interpretation (3) |
| NUTR 525 – Clinical Nutrition III (2) |

| |
|---|
| NUTR 526 – Clinical Nutrition Practicum III (3) |
| NUTR 527 – Advanced Clinical Practice and Mentorship (3) |
| NUTR 530 – Healthcare Foodservice Management (3) |

# STUDENT ASSOCIATION, HONOR SOCIETIES, AND PROFESSIONAL ORGANIZATIONS

## STUDENT ASSOCIATION

Students are encouraged to join the Graduate Nutrition Student Association (GNSA) and at least one professional organization.

## HONOR SOCIETIES

Graduate students may be eligible for one or more of the honor societies identified below (Table 10).

Table 10. Nutrition-Related Honor Societies

| Society | Eligibility Criteria | Membership Process | Publications |
|---|---|---|---|
| Phi Kappa Phi | In upper 10% of candidates | Election by the membership for advanced degrees in college | Phi Kappa PhiFORUM |
| Sigma Xi | Evidence of research ability or potential | Nomination by member and recommendation by Admissions Committee and election by membership | American Scientist |

## PROFESSIONAL ORGANIZATIONS

Graduate students are encouraged to join at least one professional organization. Many of theseorganizations provide scholarships, travel funding, and other benefits to students (Table 11).

Table 11. Nutrition-Related Professional Organizations and Respective Journals

| Organization Name | Common name | Respective Journals |
|---|---|---|
| *Academy of Nutrition and Dietetics* | *The Academy* | *Journal of the Academy of Nutrition and Dietetics (JAND)* |
| *American Society for Parenteral and Enteral Nutrition* | *ASPEN* | *Journal of Parenteral and Enteral Nutrition (JPEN)*<br>*Nutrition in Clinical Practice (NCP)* |
| American College of Nutrition | *ACN* | *Journal of the American College of Nutrition (JACN)* |
| *American Diabetes Association* | *ADA* | *Diabetes; Diabetes Care* |
| *American Public Health Association* | *APHA* | *American Journal of Public Health (AJPH)* |
| *American Society for Nutrition* | *ASN* | *American Journal of Clinical Nutrition (AJCN);*<br>*Journal of Nutrition (JN);*<br>*Nutrition in Clinical Practice (NCP)* |
| *International Society for Behavioral Nutrition and Physical Activity* | | *The International Journal of Behavioral Nutrition and Physical Activity (IJBNPA)* |
| *Society for Behavioral Medicine* | *SBM* | *Annals of Behavioral Medicine*<br>*Translational Behavioral Medicine* |
| *Society for Nutrition Education and Behavior* | *SNEB* | *Journal of Nutrition Education and Behavior (JNEB)* |
| *The Obesity Society* | *TOS* | *Obesity* |

# RESOURCES

| Student Resources | International Students |
|---|---|
| *College of Education, Health, and Human Sciences (CEHHS) website* (https://cehhs.utk.edu/) | *Center for International Education* (international.utk.edu) |
| *Counseling Center* (counselingcenter.utk.edu) | *International House* (ihouse.utk.edu) |
| *Graduate Catalog* (tiny.utk.edu/grad-catalog) | *ITA Testing Program* (tiny.utk.edu/ita-testing) |
| *Graduate School* (gradschool.utk.edu) | **Professional Development & Training** |
| *Graduate School Forms* (gradschool.utk.edu/forms-central) | *Best Practices in Teaching Program* (tiny.utk.edu/bpit) |
| *Graduate Student Life* (gradschool.utk.edu/graduate-student-life/) | *Center for Career Development* (career.utk.edu) |
| *Graduate Student Senate* (gss.utk.edu) | *Experience Learning* (experiencelearning.utk.edu) |
| *Graduation Deadlines* (tiny.utk.edu/grad-deadlines) | *Office of Graduate Training and Mentoring* (gradschool.utk.edu/training-and-mentorship) |
| *Nutrition Department website* (https://nutrition.utk.edu/) | *Tennessee Teaching and Learning Center* (tenntlc.utk.edu)<br>UT CIRTL: *Center for Integration of Research and Teaching* (https://teaching.utk.edu/utcirtl/) |
| *Office of Equity and Diversity* (oed.utk.edu) | *UT Libraries Information for Graduate Students* (libguides.utk.edu/graduate) |

| | |
|---|---|
| *Office of Graduate Admissions* (gradschool.utk.edu/admissions) | **Funding** |
| *Office of Information Technology* (oit.utk.edu) | *Costs and funding opportunities* (tiny.utk.edu/grad-funding) |
| *Office of Multicultural Student Life* (multicultural.utk.edu) | *Financial Aid and Scholarships* (onestop.utk.edu/financial-aid) |
| *Office of Research Integrity & Assurance* (research.utk.edu/compliance) | *Graduate Student Senate Travel Awards* (https://gss.utk.edu/gss-travel-awards/) |
| *The Pride Center* (pridecenter.utk.edu) | |
| *Sexual Misconduct, Relationship Violence, and Stalking* (sexualassault.utk.edu) | |
| *Student Conduct and Community Standards* (studentconduct.utk.edu) | |
| *Student obligations and appeals process* (tiny.utk.edu/rights-obligations) | |
| *Thesis/Dissertation Consultant* (gradschool.utk.edu/theses dissertations) | |

# REFERENCES

The Academy of Nutrition and Dietetics. Public Health and Community Nutrition. Accessed July 10, 2023. *https://www.eatrightpro.org/practice/practice-resources/public-health-and-community*.

# APPENDIX

## POTENTIAL ELECTIVE GRADUATE COURSES

**ANSC 520 – Animal Physiology** (**4 Credit Hours**) Major body systems and interrelationships: nervous, muscle, blood, cardiovascular, kidney, respiratory, gastrointestinal, and endocrine. Concepts of metabolism, temperature regulation, and acid-base balance. Recommended Background: *General undergraduate coursework in anatomy and physiology. Registration Restriction(s): Minimum student level – graduate or permission of instructor.*

**ANSC 571 - Design and Analysis of Biological Research** (**3Credit Hours)** Experimental design and procedures; selection of experimental units; analysis and interpretation of data; statistical models and contrasts, analyses of variance: covariates, treatment arrangements, mean separation and regression. *Cross-listed: (Same as Plant Sciences 571.) Recommended Background: 3 hours of statistics. Registration Restriction(s): Minimum student level – graduate or permission of instructor.*

**ANSC 625** – **Mammalian Endocrinology** (**3 Credit Hours**) Different endocrine glands and hormones of the body; hormone types, receptors, and methods of action; hormone signaling axes involved in growth, metabolism, reproduction, thyroid function, calcium homeostasis, inflammation and immune response, stress, and salt/mineral balance; importance of proper endocrine function for health and productivity of mammals; and key disorders associated with altered endocrine function. Primary scientific literature will be used to illustrate different topics. Students will actively participate in discussions of relevant journal articles. Recommended Background: *Physiology and or Biochemistry. Registration Restriction(s): Minimum student level – graduate or permission of instructor.*

**ANSC 650 – Animal Immune Physiology** (**3 Credit Hours**) Interaction of the immune system with other physiological processes such as reproduction, nutrition, and endocrine that influence whole animal systems. Recommended Background: *Graduate physiology course. Registration Restriction(s): Minimum student level – graduate or permission of instructor.*

**BCMB 412 - Molecular Biology and Genomics** (**4 Credit Hours)** Nucleic acids structure and DNA technology. Mechanisms of cell division, replication, transcription, translation, splicing, recombination, DNA repair andtransposition, chromosome organization, DNA-protein interaction in gene regulation, genomic imprinting, epigenetics, RNA interference and genome evolution. *(RE). Prerequisite(s): Biology 240. Comment(s): Intended for biology majors in BCMBconcentration but also open to biology majors in other concentrations.*

**BCMB 419 - Cellular and Comparative Biochemistry Lab** (**2 Credit Hours)** Experiments with enzymes, nucleic acids, and membranes and organelles. Chromatography, kinetics, hybridization, sequencing, andimmunochemical methods. *(RE) Prerequisite(s): 401.*

**BCMB 422 - Computational Biology and Bioinforma**tics (**3 Credit Hours)** An introduction to the cutting-edge tools and approaches biologists and clinicians use to extract information from the vast amounts of genomic and proteomic data becoming available. Students gain hands-on experience with computational biology tools such as data mining, protein structure manipulation and prediction, interaction network analysis, DNA sequence analysis, gene function analysis, R studio for statistics and data visualization, and dimensionality reduction for large datasets. Students apply these tools to biomedical research questions in course projects. *Contact Hour Distribution: 2 hours lecture and 2 hours lab. (RE) Corequisite(s): 401. Comment(s): Helpful if students have taken or are taking BCMB 412. Registration without 401 co-requisites is possible with permission of instructor. Registration Restriction(s): Minimum student level — junior or graduate student. Registration Permission: Consent of instructor.*

**BCMB 440 - General Physiology** (**3 Credit Hours)** Principles of cellular and organ-system animal physiology. (RE) Prerequisite(s): Biology 160-159 or equivalent. Comment(s): It is recommended that students complete Physics 221-222 before enrolling in this course.

**BCMB 511 - Advanced Protein Chemistry and Cellular Biology** (**3 Credit Hours)** Cellular structure and function at molecular and supramolecular level in progression: protein structure and function; membrane structure and function; bioenergetics and membrane proteins. *(RE) Corequisite(s): 510. Recommended Background: Prior knowledge of cell biology and biochemistry. Registration Permission: Consent of instructor.*

**BCMB 512 - Advanced Molecular Biology** (**3 Credit Hours)** Regulation of nucleic acid expression and protein activity. Nucleic acid structureand function; replication and repair of nucleic acids; gene expression; protein synthesis; post-translational protein modification; mitosis and meiosis; cell cycle and cell growth. *Recommended Background: Prior knowledge of molecular biology and biochemistry and/or consent of instructor.*

**BCMB 515 - Experimental Techniques I** (**3 Credit Hours)** Introduction to key experimental and computational methodologies and instrumentation in biochemistry, molecular biology and cell biology with a focus on experimental design and data analysis. Students will learn how to choose appropriate experimental and/or analytical approaches to biological problems; design cellular, molecular, biochemical, and genomics experiments with appropriate controls; interpret quantitative results with appropriate visualization and statistical analyses; understand potential pitfalls in experimental design and approaches to troubleshooting. Team-taught lecture/demonstration format. *Comment(s): Primarily for departmental graduate students.*

**BCMB 530** - **Experimental Design and Analysis (3 Credit Hours)** Development of skills in strategies of experimental design and interpretation of experimental results. Critical discussion of research articles illustrating issues in experimental design. Preparation of grant proposal in standard format to be read and discussed by class and by panel of faculty expert in area of proposal.
Registration Permission: *Consent of instructor.*

**CEM 504 – Descriptive and Applied Epidemiology (3 Credit Hours)** Principles of epidemiology as well as historic and modern applications to human and animal diseases. Host-agent relationships, measurement of disease frequency, disease monitoring and control in human and animal populations, field investigations, animal health economics and production.

**CEM 506 – One Health** (**1 Credit Hours**) Online course that will address the link between human, animal, and environmental health. Each online module focuses on some aspect of "One Health" and may include topics such as emergency preparedness, zoonotic diseases, antibiotic resistance and food safety, responsible pet ownership and the human-animal bond, and the effects of climate on disease prevalence. Methods of intervention and problem solving such as research design, program evaluation, community education, and policy analysis are also incorporated. Registration Restriction(s): *for seniors or graduate students only.*

CEM 525 - Research Ethics for the Life Sciences (1 Credit Hours)

**CEM 541 - Cellular and Molecular Basis of Disease** (**3 Credit Hours)** Disease at the molecular level. Changes in molecular events in cells that lead to disease and occur as a result of disease. Correlation with clinical and pathological states. Systems covered: neurological, structural, respiratory, circulatory, metabolic, endocrine, reproductive, and immunological. Correlation with clinical pathological states. (DE) Prerequisite(s): Biochemistry and Cellular and Molecular Biology 419 or equivalent. *Prerequisite(s): Biochemistry and Cellular and Molecular Biology 419 or equivalent.*

**CEM 544 – Cancer Cell Biology (3 Credit Hours)** Comprehensive discussion of the major mechanisms of cancer initiation, promotion, and progression. Emphasizes experimental approaches, signaling pathways, technology, and animal models that are employed to study cancer. Students are expected to learn about common laboratory techniques in cancer research, apoptosis/cell cycle, and the following as they relate to cancer: alternative splicing, signaling pathways, inflammation, chemo/dietary prevention, animal models, pathobiology, PET/CT imaging, genetics, lipids, radio-oncology, metastasis/angiogenesis, and obesity. Recommended Background: *Advanced biology, including cell biology, molecular biology, biochemistry, microbiology, or genetics.*

**FDSC 410 - Food Chemistry** (**3 Credit Hours)** Reactionsof water, proteins, lipids, carbohydrates, minerals, enzymes, vitamins, and additives in foods. (*RE) Prerequisite(s): Chemistry 110 or 260.*

**KNS 531 - Biomechanics** (**3 Credit Hours)** Fundamental knowledge of 2D and 3D biomechanical principles and applications in kinematics and kinetics, anthropometric models, instrumentation, signal processing and noise reduction, and related topics. *Recommended Background: Undergraduate biomechanics course andPhysics 221 or equivalent*

**KNS 532 - Exercise Physiology** (**3 Credit Hours)** Physiologyof human performance: acute and chronic effects of exercise on metabolic, cardiac, pulmonary, and skeletal systems. *Contact Hour Distribution: 2 hours and 1 lab. Recommended Background: Human physiology or general physiology course and a general chemistry course.*

**KNS 535 - Health and Exercise Psychology** (**3 Credit Hours)** Critical examination of various aspects of health and exercise psychology including the psychological benefits of exercise (e.g., increased well-being) as well as thepsychological pitfalls of too much exercise (e.g., exercise addiction, overeating, disordered eating behavior etc.). *Registration Restriction(s): Must be majors within the Department of Kinesiology, Recreation, and Sport Studies or permission of the instructor.Minimum student level – graduate.*

**KNS 565 - Advanced Physiology of Exercise** (**3 Credit Hours)** Systematic study of skeletal muscle and metabolism related to acute exercise andphysical training: lectures, discussions of major scientific reviews, and appropriate laboratory experiments. *(RE) Prerequisite(s): 480 or 532.*

**LFSC 515 - Introduction to Genome Science and Technology I** (**1 Credit Hours)** Introduction to research in genome science and technology concentration. *Grading Restriction: Satisfactory/No Credit grading only.*

**LFSC 517 - Genomics and Bioinformatics** (**3 Credit Hours)** Cross-listed: (Cross listed with Microbiology 540.) Fundamentals of a new scientific discipline based on sequencing genomes (entire DNA) of individual organisms.Goals, principles, and types of genome analysis are covered in a traditional lecture course. Computational tools for genome analysis (bioinformatics) are presented in both lecture and hands-on (computer-laboratory) settings.

LFSC 520 - Genome Science and Technology I (4 Credit Hours) Overview of genomics, advanced genetics principles.

LFSC 521 - Genome Science and Technology II (4 CreditHours) Analytical technologies and special techniques.

**LFSC 615 - Journal Club in Genome Science and Technology** (**1 Credit Hours)** Reading and discussion based on current literature. Grading Restriction: Satisfactory/No Credit grading only. Repeatability: May be repeated. Maximum 12 hours. Registration Restriction(s): Minimum student level – graduate.

**MICR 594** – **Grant Writing** (**3 Credit Hours**) Readings and description of scientific ethics and grant writing.

**NUTR 548 - Directed Study in Nutrition** (**1-3Credit Hours)** Advanced study in nutrition. Repeatability: May be repeated. Maximum 6hours. Registration Permission: Consent of instructor.

**NUTR 549 - Special Topics** (**1-3 Credit Hours)** Recentadvances in nutrition or food systems administration. *Repeatability: May be repeated. Maximum 6 hours. Registration Permission: Consent of instructor.*

**NUTR 602 - Advanced Topics in Nutrition Science** (Associated Term: Spring): (**1-3 Credit Hours)** Comprehensive individual study and group discussion of topics related tocurrent problems in nutrition. *Repeatability: May be repeated. Maximum 12 hours. (RE) Prerequisite(s): 512 or consent of instructor. Registration Restriction(s): Minimum student level – graduate.*

**NUTR 655 Molecular Mechanisms and Signaling Pathways in Health and Disease** (**3 Credit Hours)**: Signal transduction pathways and mechanisms whereby mammalian cells sense and respond to nutritional factors in their environment and transduce the signals into different physiological and genetic outcomes under normal healthy or disease conditions. Students enrolled in this class will acquire basic knowledge in molecular mechanisms of several human metabolic and non-metabolic diseases including obesity, diabetes, inflammatory bowel disease, fibrosis, and cancer. *Registration Restriction(s): Minimum student level – graduate.*

**PLSC 561 Statistics for Biological Research (3 Credit Hours)** Application of statistics to interpretation of biological research. Notation, descriptive statistics, probability, distributions, confidence intervals, t- and chi-square tests, analysis of variance, mean separation procedures, linear regression and correlation*. Credit Restriction: Students may not receive credit for both 561 and 461. Registration Restriction(s): Minimum student level – graduate.*

**PSYC 580 – Research Design** (**3 Credit Hours**) Developing questions, hypotheses, and research designs for empirical investigation in psychology. Registration Permission: *Consent of instructor.*

**PUBH 536 – Research Methods in Health** (**3 Credit Hours**) Research design, basic quantitative and qualitative research techniques and ethical considerations. Development of research skills, data collection instruments, and problem identification for research topic.

**STAT 537** – **Statistics for Research I** (**3 Credit *Hours*)***.*** Principles and application of statistical methodology, integrated with considerable use of major statistical computing system. Probability and probability distributions, forming and testing hypotheses using parametric and nonparametric inference methods. Matrix-based simple linear regression and correlation.
*Credit Restriction: Students may not receive credit for both 537 and 531.*
*Recommended Background: 1 year of undergraduate mathematics and 1 undergraduate statistics course.*

**STAT 538** – **Statistics for Research II** (**3 Credit Hours**). General linear model as applied to multiple regression and analysis of variance. Diagnostic and influence techniques. One-way, factorial, blocking, and nested designs, preplanned versus post-hoc contrasts. Random factors and repeated measures. (RE) Prerequisite(s): *537 or 532.*

**SOWK 519 – Foundations of Social Work Research** (**3 Credit Hours**) A required generalist course. Includes the concepts and skills underlying social work research, including basic research terminology, the value of research in social work practice, research ethics, research with minoritized populations, problem formulation and conceptualization, measurement, research designs, sampling, quantitative and qualitative data collection and analytic techniques. Registration Restriction(s): *Master of Science in Social Work – social work major. Graduate students only. Minimum student level graduate. Registration Permission: Non-MSSW students may register with permission of program director.*