THE UNIVERSITY OF ALABAMA® | Office of the President

May 4, 2017

Chancellor C. Ray Hayes
The University of Alabama System
500 University Boulevard East
Tuscaloosa, AL 35401

Dear Chancellor Hayes:

I am pleased to endorse the recommendation from Provost Kevin Whitaker and Deans Susan Carvalho of the Graduate School and Milla Boschung of the College of Human Environmental Sciences for initial approval of the attached proposal for the Ph.D. in Human Nutrition (CIP Code 19.0504). Because of the changing mandate that all registered dietitians must have a graduate degree effective 2024, there is growing demand for individuals to have a terminal degree in Human Nutrition. Additionally, the purpose of this particular doctoral program, to improve human health by taking the nutritional research from the laboratory to the community, is ideally suited to address the public health crisis in Alabama related to poor dietary intake.

If you approve of this proposal, I would appreciate you forwarding this request to the Board of Trustees for their approval.

Sincerely,

Stuart R. Bell
President

Enclosures

c: Executive Vice President and Provost Kevin Whitaker
Dean Susan Carvalho
Dean Milla Boschung

203 Rose Administration Building | Box 870100 | Tuscaloosa, AL 35487-0100 | 205-348-5100 | Fax 205-348-7238
president@ua.edu | http://www.ua.edu

THE UNIVERSITY OF ALABAMA® | *Office for* Academic Affairs

May 4, 2017

President Stuart R. Bell
The University of Alabama
203 Rose Administration Building
Tuscaloosa, AL 35487

Dear President Bell:

I join Dean Susan Carvalho of the Graduate School and Dean Milla Boschung of the College of Human Environmental Sciences in recommending for your approval the attached proposal for the Ph.D. in Human Nutrition (CIP Code 19.0504) in the College of Human Environmental Sciences. Because of the changing mandate that all registered dietitians must have a graduate degree effective 2024, there is growing demand for individuals to have a terminal degree in Human Nutrition. Additionally, the purpose of this particular doctoral program, to improve human health by taking the nutritional research from the laboratory to the community, is ideally suited to address the public health crisis in Alabama related to poor dietary intake.

If you approve of this proposal, please forward this request to the Chancellor at your earliest convenience.

Sincerely,

Dr. Kevin Whitaker
Executive Vice President and Provost

Enclosures

c: Dean Susan Carvalho
Dean Milla Boschung

254 Rose Administration Building | Box 870114 | Tuscaloosa, AL 35487-0114 | 205-348-4890 | Fax 205-348-9137

THE UNIVERSITY OF ALABAMA | College of Human Environmental Sciences
Office of the Dean

April 27, 2017

Provost Kevin Whitaker
The University of Alabama
Office for Academic Affairs
254 Rose Administration Building
Tuscaloosa, AL 35487

Dear Provost Whitaker:

It is with pride that I recommend your approval of the proposal for the development of a Doctor of Philosophy in Human Nutrition (CIP Code: 19.0504) to prepare students to become leaders in the field of human nutrition. This program has been reviewed both in the department and the college and there is unanimous support to go forward with the proposal.

As the marketplace changes due to the new policy by the national accrediting body for registered dietitians (RD) that will require all registered dietitians to have a Master's degree by the year 2024, many practicing RDs will return to school to complete their Master's degree to remain competitive. With only 3,767 RD's with terminal degrees, the need for PhD professionals in this area is great.

The rapid increase in demand for registered dietitians with graduate degrees will put pressure on doctoral programs to produce larger numbers of graduates with nutrition-related terminal degrees to provide faculty to train students in the growing graduate program. Therefore the proposed doctoral program in Human Nutrition is both timely and critical to the success of the profession.
I recommend the approval of this proposal without reservation.

Sincerely,

Milla Boschung

Milla Boschung, Ph.D.
Dean

100 Doster Hall | Box 870158 | Tuscaloosa, AL 35487-0158 | 205-348-6250 | Fax 205-348-3789 | www.ches.ua.edu

THE UNIVERSITY OF ALABAMA | Graduate School
Office of the Dean

April 26, 2017

Provost Kevin Whitaker
The University of Alabama
Office for Academic Affairs
254 Rose Administration Building
Tuscaloosa, AL 35487

Dear Provost Whitaker:

I join Dean Milla Boschung in recommending for your approval the attached proposed for a Ph.D. in Human Nutrition (CIP 19.0504). The Graduate Council unanimously approved of this NISP at its meeting on April 25, 2017. This proposed graduate degree program meets specific needs and will attract new graduate enrollments.

If you approve of this proposal, please forward this request to President Bell at your earliest convenience so that it may be considered at the next meeting of the Board of Trustees.

Sincerely,

Dr. Susan Carvalho
Associate Provost and Dean of the Graduate School

Enclosures

c.: Dr. Catherine Pagani

THE UNIVERSITY OF ALABAMA

Resolution

Granting Initial Approval of and Permission to Submit to the Alabama Commission on Higher Education (ACHE) a Proposal for a Doctor of Philosophy (Ph.D.) in Human Nutrition (CIP Code 19.0504) in the Department of Human Nutrition and Hospitality Management in the College of Human Environmental Sciences

WHEREAS, the College of Human Environmental Sciences at The University of Alabama currently offers a collection of courses in human nutrition in the Master of Science in General Human Environmental Sciences degree with a robust enrollment of students, of which a significant number wish to pursue a terminal degree; and

WHEREAS, the national accrediting agency for registered dietitians has mandated that all registered dietitians must have a graduate degree effective 2024, thereby producing rapid growth in graduate programs nationally; and

WHEREAS, a Doctor of Philosophy in Human Nutrition degree program would utilize existing faculty expertise, grow the existing research program in human nutrition, and enhance the ability to recruit top-ranked researchers to the department;

NOW, THEREFORE, BE IT RESOLVED by the Board of Trustees of The University of Alabama that it grants initial approval of and permission to submit to the Alabama Commission on Higher Education (ACHE) a Proposal for a Doctor of Philosophy (Ph.D.) degree in Human Nutrition (CIP Code 19.0504) in the Department of Human Nutrition and Hospitality Management in the College of Human Environmental Sciences at The University of Alabama.

Alabama Commission on Higher Education

PROPOSAL FOR A NEW DEGREE PROGRAM – NEW APPLICATION TOOL

Please check one: [ ] Baccalaureate Program [X] Graduate Program

A. General Information

1. Institution: The University of Alabama

2. Institutional Contact Person: Cathy Pagani or Ginger Bishop

   Telephone: 205-348-8284 (Pagani) or 205-348-7125 (Bishop)
   E-mail: cathy@ua.edu or vabishop@ua.edu

3. Program Identification--

Field of Study/ Program Title:	Human Nutrition
Degree:	Doctor of Philosophy (Ph.D.)
CIP Code:	19.0504

4. Date of Proposal Submission: June 6, 2017

5. Proposed Program Implementation Date: Fall 2018

6. Program Administration:

Name of College/School:	College of Human Environmental Sciences
Name of Dean:	Dr. Milla Boschung
Name of Department:	Dept. of Human Nutrition and Hospitality Management
Name of Chair:	Dr. Jeannine Lawrence

Note: Please expand all response fields as necessary.

B. Program Purpose and Description

1. In no more than one paragraph describe the purpose of the proposed program. Please also include a brief statement regarding how the program's purpose is related to the University's mission and goals.

   The purpose of the Human Nutrition (Ph.D.) program at The University of Alabama is to support the training and development of researchers and leaders in the field of nutrition. Graduates of the Ph.D. in Human Nutrition will be experts in nutrition research methodologies and translational nutrition, thereby efficiently advancing the field of nutrition through research to improve human health. Specific strengths of the program will align with the goals of the National Center for Advancing Translational Sciences (NCATS) at the National Institutes of Health. Established in 2011, the NCATS has the goal of carrying science across disciplines (i.e. translational science) to bring innovations to improve human health in a more efficient manner. Similarly, the goals of the Human Nutrition (Ph.D.) program are to educate students in translational nutrition methods, i.e. integrating distinct and independent areas of nutrition research into a collaborative effort to directly move specific nutrition research from the laboratory to the community in a "bench-to-bedside" approach, thereby differentiating the proposed program from other doctoral nutrition programs in the state. Graduates will be experts in integrative nutrition research methods, including cross-training in different methods of implementation, translation, communication, and application of nutrition research to directly improve patient and population health. Additionally, the proposed program will develop doctorally-prepared nutrition educators that can then instruct nutrition practitioners (at the Master's level) for advanced-level practice. In these manners, this program would support the University's mission "to advance the intellectual and social condition of the people of the State, the nation, and the world" by directly improving the knowledge and skills of dietetics and nutrition practitioners, who in turn can improve the health and quality of life of the residents of the state of Alabama, nationally, and worldwide.

2. Please provide a description of the specific kinds of employment opportunities, post-graduate professional degree programs, and other graduate programs that will be available to the graduates.

   Graduates obtaining a Ph.D. in Human Nutrition are well-positioned to become leaders in the field of nutrition and have a wide variety of options for employment. Most graduates with a Ph.D. in Human Nutrition will likely seek employment in an academic institution, as a nutrition researcher, educator, or in program administration. However, experts in the nutrition field are also highly employable within government roles or in commercial industry. In governmental agencies, holders of a terminal degree in nutrition are hired as program and policy developers for state and national nutrition intervention initiatives. In private industry, graduates of this degree program are able to find employment in food industry research,

developing and implementing large-scale corporate health and wellness programs, and in clinical nutrition product development and evaluation.

3. Succinctly list at least four (4) but no more than seven (7) of the most prominent ***student learning outcomes*** of the program. These outcomes should lend themselves to subsequent review and assessment of program accomplishments.

   In accordance with the goals of the National Institutes of Health NCATS to implement and promote translational science approaches that foster collaborative bench-to-bedside-to-community approaches, a student who has completed this program in Human Nutrition will demonstrate mastery of:

   1) Translational nutrition – Demonstrate proficiency in nutrition techniques that are integrated across discrete areas of nutrition research methodologies into a cohesive research agenda that moves nutrition research from the laboratory to the patient/community.

   2) Communication - Effectively communicate nutrition information, evidencing the ability to evaluate and interpret current research for presentation to the academic, scientific, and/or the lay community.

   3) Nutrition research practice – Demonstrate an understanding of relevant laboratory analyses methodologies, metabolic assessment techniques, and statistical research methodologies appropriate for developing strong, competitive research proposals.

   4) Independent research – Demonstrate the ability to support an independent career in research by successfully developing and implementing a research protocol, gathering data to effectively test the hypothesis (or hypotheses), and analyzing and interpreting the data.

   5) Effective educators - Demonstrate skills of effective classroom presentation of nutrition-related information.

C. Need for the Program

1. *State need.* Briefly describe why the program is specifically needed for the State of Alabama. (State need is considered a priority in the review process.)

   Alabama, with 24.5% and 37.2% of adult residents who are obese or overweight (respectively), is among the top seven states in the nation for obesity and

overweight prevalence.[1] Obesity/overweight citizens present a critical public health crisis. Not surprisingly, five of the top 10 leading causes of death in the state of Alabama, including heart disease, cancer, stroke, diabetes, and kidney disease, are directly related to poor dietary intake. This is particularly true for the top two leading causes of death in Alabama, heart disease and cancer, for which inappropriate dietary intake is a well-proven risk factor.[2] As such, a doctoral program that uses translational nutrition methodology to identify collaborative methods of nutrition research, thereby moving nutrition interventions from the laboratory to the individual is a significant need to improve both individual patient and population health in the state of Alabama.

Additionally, there is a growing demand for registered dietitians/nutritionists to meet the healthcare needs of the U.S. population. Increasing the number of graduate-level trained nutrition professionals in the state of Alabama will have a direct benefit on improving the healthcare outlook and health of the residents of Alabama. The Workforce Demand Study conducted by the Academy of Nutrition and Dietetics projected a national deficit of trained nutrition professionals of 25% of the national estimated need by the year 2020 as the health of the nation continues to decrease, the average population age continues to increase, and the growing understanding and emphasis on the importance of nutrition in maintaining a healthy lifestyle outpaces the addition of new nutrition professionals entering the workforce.[3]

The increased need for registered dietitians is projected to be compounded by new national mandates governing the accreditation of registered dietitians. The accrediting agency for registered dietitians, the Academy of Nutrition and Dietetics' Accreditation Council on Education in Nutrition and Dietetics (ACEND), will require all registered nutrition practitioners to have a graduate degree at the master's level, effective 2024. Therefore, enrollment in graduate-level nutrition programs will continue to increase over the next decade, leaving a shortage of doctorally-prepared educators to teach those students seeking a graduate education. This "domino effect" will necessitate a drastic increase in graduates of doctoral programs in order to meet the needs for educators at the graduate level. Additionally, ACEND is requiring that directors of existing nutrition programs must obtain a terminal degree to continue in their current position, also effective 2024 (see included letter of support in Appendix A.) This means that approximately 300 of the 600 nutrition program directors nationally who do not currently have doctoral degrees must obtain terminal degrees in order to

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[1] *Alabama Center for Health Statistics. Obesity and overweight fact sheet.* www.adph.org/administration/obesityfactsheet.pdf *Accessed Sept. 1, 2016.*

[2] *Alabama Department of Public Health. Vital Statistics 2014.* http://www.adph.org/healthstats/assets/AVS2014_.pdf *Accessed Sept. 1, 2016.*

[3] Rhea M, Bettles C. *Future changes driving dietetics workforce supply and demand: future scan 2012-2022.* J Acad Nutr Diet. 2012;112(3 Suppl):S10-24. Doi: 10.1016/j.jand.2011.12.008.

continue in their current positions. On a state level, of the six Coordinated Program and Dietetic Internship Directors of accredited programs in Alabama, five do not have doctoral degrees. In and of itself, these two requirements from the national accrediting agency will result in a significant need for increased availability of doctoral programs as enrollment in doctoral programs will continue to increase over the next decade.

2. *Employment Opportunities.* Based on your research on the employment market for graduates of this program, please complete the following table reporting the total projected job openings (including both growth and replacement demands) in your local area, the state, the SREB region, and the nation. These job openings should represent positions that require graduation from a program such as the one proposed.

Career and College Readiness/Preparation -- Projected Job Openings

	Year 1	Year 2	Year 3	Year 4	Year 5	Total
Local	1	1	1	1	1	5
State	11	13	16	20	24	84
SREB	212	259	317	387	473	1,648
Nation	754	907	1,091	1,313	1,579	5,644

Please briefly describe your methodology for determining employment opportunities – projected job openings. Be sure to cite any data sources used in formulating these projections. The actual survey instrument, detailed results, and associated data file(s) must be maintained internally by the institution for five years from the implementation date. The survey upon which the proposal is based must be available for ACHE Staff examination upon request for that five year timeframe. The survey instrument, detailed results, or associated data file(s) should not be included in the proposal.)

Projected Local Openings – Projections for local employment opportunities are based on experience over the last five years with nutrition faculty positions at The University of Alabama. During that period, six new nutrition faculty members were hired, with only one position representing replacement of a faculty member who was leaving the department.

Projected Openings at the State, SREB, and National Levels -
Job growth for registered dietitians and nutritionists is estimated nationally to be at 16% over the next decade which, according to the U.S. Bureau of Labor Statistics, is much higher than growth in other fields. This growth is projected to be higher in Alabama (17.7%) and the SREB states (18.8%).[4,5] This will result in an estimated 3,620 estimated new registered dietitians annually needed to meet the national need, and each of these dietitians will need a master's degree effective 2024 to meet national accreditation standards. This need will result in a concomitant drastic growth in the need for terminally-degreed nutrition educators to teach at the graduate level.

While data are not available to identify the number of all persons with terminal degrees in a nutrition-related field, data are available on a more limited group, the number of registered dietitian/nutritionists with a doctoral degree. According to the Academy of Nutrition and Dietetics' Compensation and Benefits Survey 2015 it is estimated that, of the 94,186 registered dietitian/nutritionists in the United States, 4% (or 3,767) hold a terminal degree.[6] Using this number as a baseline will result in an underestimation of projection for employment opportunities overall as it only represents those who have both terminal degrees and are registered dietitians, and not all persons with a terminal nutrition degree. Therefore it can be considered a conservative estimate of employment growth for persons with a terminal degree in a nutrition-related field, as it would mirror the projected growth of registered dietitian/nutritionists employment opportunities. Data regarding employment by state were obtained from the Committee on Dietetic Registration. These data were then adjusted to accommodate an average annual estimated attrition rate seen in the nutrition and dietetics profession.[7] Based on historical workforce data, an attrition rate of 2-5% is seen for who will leave the workforce for reasons of emigration, extended leave, or retirement. Therefore, the mean (3.5%) was used to accommodate annual attrition and determine projected job openings.

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[4] Bureau of Labor Statistics. *Occupational Outlook Handbook.* http://www.bls.gov/ooh/Healthcare/Dietitians-and-nutritionists.htm Accessed March 25, 2017.

[5] Bureau of Labor Statistics. *Occupational Employment Statistics for Dietitians and Nutritionists.* http://www.bls.gov/oes/current/oes291031.htm Accessed March 20, 2017.

[6] Rogers D. Compensation and benefits survey 2015. *J Acad Nutr Diet.* 2016;(3):370-88. Doi: 10.1016/j.jand.2016.01.002.

[7] Committee on Dietetic Registration. *Number of Registered Dietitians by State.* https://www.cdrnet.org/certifications/number-of-registered-dietitians-by-state Accessed March 15, 2017.

3. *Student Demand - Enrollment projection.* Please briefly describe your methodology for determining enrollment projections. If a survey of student interest was conducted, *please briefly describe the survey instrument, number and percentage of respondents, and summary of results.*
(The survey instrument, and associated data file(s) need not be included in the proposal. This proposal information should be maintained for ACHE Staff review for five years from the actual implementation date.)

To determine student demand, a survey was sent to academically-eligible students and alumni from the Master of Science degree program in UA's Human Environmental Sciences (M.S.H.E.S.) enrolled in an area of study in Human Nutrition. Of the 185 students and alumni surveyed, 64 (34.6%) responded. Of the responders, 39 (60.9%) responded "yes" that they had considered attending a Ph.D. program as the next step in their future academic career and, of those, 26 (66.7%) responded that they would be interested in applying to a Ph.D. program in Human Nutrition at The University of Alabama. Based on this survey, and the identified need for an increase in nutrition educators/researchers with a terminal degree to address both state and national needs, it is anticipated that this program would attract appropriate qualified applicants to maintain viability and would be of value to the Alabama Higher Education System.

D. Specific Rationale (Strengths) for Program

What is the specific rationale (strengths) for recommending approval of this proposal? List no fewer than three (3) and no more than five (5) potential program strengths.

1. The University of Alabama is uniquely poised to administer a program in Human Nutrition that focuses on educating students in translational nutrition. The proposed program relies on a strong core of nutrition faculty with a history of successful collaborative research agendas. Additionally, the diverse research faculty represent nutrition expertise in a balanced manner across multiple, distinctive areas of nutrition research. These include one nutritional epidemiologist, two food scientists, two nutritional biochemists, three clinical nutrition researchers, and three community nutrition researchers. This balance of expertise will strengthen the skills of graduates by providing doctoral students with the opportunity to train in translational research methods across diverse areas of research.

2. In further support of the translational nutrition model, nutrition researchers at The University of Alabama do not perform their research in "silos" or isolated lab spaces. Instead they work in a large, versatile, shared research space. This Nutrition and Metabolism Research laboratory space is ~2,500 square feet of new, dedicated research space designed to foster integrative nutrition research. It includes areas for the implementation of distinctive areas of nutrition research, including food science, nutritional biochemistry, clinical nutrition, and community education. As this is shared collaborative space, students in the Ph.D. program will train side-by-side with researchers of different areas of expertise. They will

receive hands-on experience in multiple areas of nutrition research methodology, thereby preparing them to be leaders in the area of translational nutrition research.

3. The nutrition faculty at The University of Alabama have a sound record of effective teaching. All current faculty have demonstrated superior skills teaching within the current undergraduate B.S. degree in Food and Nutrition (enrollment = 690) as well as in the graduate Master of Science degree program in Human Environmental Sciences (M.S.H.E.S.) with an area of study in Human Nutrition (enrollment = 116). The Ph.D. program will build upon the demonstrated teaching success of the nutrition faculty as well as using the academic foundation established by the existing B.S. and M.S.H.E.S. degrees existing within the department to further support the success of the proposed Ph.D. program in Human Nutrition.

Please note that letters of support may be included with the proposal.

E. Similar Programs

Using the ACHE Academic Program inventory found at
http://www.ache.state.al.us/Content/Departments/Instruction/StudentInfo.aspx
List below all programs at the same degree level (by institution) that utilize the same 6-digit CIP code as the one being requested in the program proposal.

Also, list any programs at other CIP codes that may be offering similar instruction.

If there are no similar programs place a "0/none" by 1. in the listing directly below.

Note: Institutions should consult with ACHE Staff during the NISP phase of proposal development to determine what existing programs are considered duplicative of the proposed program.

The following institutions offer food or nutrition-related programs at this level:

1. Alabama A&M University - Food Science (CIP Code 01.1001) – Ph.D. in Food Science.

2. Auburn University – Nutrition (CIP code 30.1901) – Ph.D. in Nutrition, Dietetics and Hospitality Management with an emphasis in Nutrition or Hotel and Restaurant Management.

3. The University of Alabama at Birmingham - Nutrition Sciences (CIP code 30.1901) – Ph.D. in Nutrition Sciences.

If the program duplicates, closely resembles, or is similar to another program already offered in the State, provide justification for that duplication.
Also, if a graduate program, please identify and list any similar programs at institutions in other SREB states.

It is anticipated that there will be no impact to existing programs. The doctoral program at The University of Alabama will emphasize "translational nutrition." This focus will align with the goals of the National Center for Advancing Translational Sciences (NCATS) at the National Institutes of Health, in joining distinct and independent areas of nutrition research into a collaborative effort to directly move specific nutrition research from the laboratory to the community in a "bench-to-bedside" approach. This focus and the strengths of the proposed program are distinctive from those of the existing doctoral programs in the state of Alabama. While all doctoral-level programs will necessarily contain foundational courses essential for a student's success, such as Nutrition Research Methods, Science and Grant Writing, Doctoral Seminars, and various statistics courses, it is in the other required core coursework that the programs differentiate themselves. For example, the Ph.D. program at Alabama A&M University is in Food Science and includes numerous courses in Food Chemistry, Food Structure, Food Flavoring, and Food Toxicology. Auburn University has required core courses in Vitamins, Minerals, Human Nutrient Metabolism, and Topics in Nutrition, Dietetics, and Hospitality Management. The University of Alabama-Birmingham has required core courses in Applied Research, Nutritional Biochemistry, Molecular Biology and Nutrition Sciences, and Obesity in the 21st Century. When compared to the proposed core coursework in Translational Nutrition and Nutrigenomics, Methods in Integrative Nutrition Assessment, Integrative Nutrition and Behavioral Interventions, and Nutritional Epidemiology, it can be seen that the translational nutrition focus of the proposed program is distinctive from those of the existing doctoral programs in the state of Alabama. Given the projected increase in doctoral enrollments nationally, and given the differences between the curriculum/focus of the proposed program and current programs in Alabama, it is expected that there will be no impact to existing programs.
See Appendix B for a comparison of required core courses in the existing programs with the current proposed program.

Listing of Doctoral-level nutrition-related programs at public universities in other SREB states

State	Institution (name)	Program title
Arkansas	U. of Arkansas - Fayetteville	PhD Food Science
Delaware	None	
Florida	Florida International Univ	PhD Dietetics & Nutrition
	Florida State University	PhD Human Science (Nutrition & Food Service)
	University of Florida	PhD Food Science; PhD Nutritional Science
	University of No. Florida	Doctorate Clinical Nutrition
Georgia	University of Georgia	PhD Food Science; PhD Food & Nutrition
	Georgia State University	PhD Chemistry – concentration in Nutritional Sciences
Kentucky	University of Kentucky	PhD Pharmacology & Nutritional Sciences
Louisiana	LSU - Baton Rouge	PhD Nutrition & Food Science
Maryland	University of Maryland - College Park	PhD Nutrition & Food Science
	University of Maryland - Eastern Shore	PhD Food & Science Technology
Mississippi	Mississippi State	PhD Food Science, Nutrition & Health Promotion (Nutritional)
	University of Mississippi	PhD Nutrition & Hospitality Management
North Carolina	North Carolina State Univ.	PhD Food Science, PhD Nutrition
	UNC - Chapel Hill	PhD Nutrition
	UNC - Greensboro	PhD Nutrition
Oklahoma	OSU - Stillwater	PhD Nutritional Sciences
	OSU - Norman	PhD Allied Health Sciences in Nutritional Science
South Carolina	Clemson University	PhD Food Technology
Tennessee	UT - Knoxville	PhD Nutritional Sciences
Virginia	Virginia Tech	PhD Food Science & Technology, PhD Human Nutrition and Foods
West Virginia	None	

F. Collaboration With Other Institutions/Agencies

Does the institution plan on collaborating with other institutions in the delivery of this program?

☐ Yes ☒ No

If yes, please indicate below which institutions and describe the basis of this collaboration.

If no, please indicate your reasons why.

At this time, there is not a plan to collaborate with other institutions as all resources and faculty necessary for successful implementation of the proposed program are currently in place. However, a discussion has been initiated with a fellow institution regarding the potential for future collaboration on graduate academic programming.

G. Curriculum

1. Program Completion Requirements: (Enter a credit hour value for all applicable components, write N/A if not applicable)

Credit hours required in major courses	27
Credit hours required in minor	NA
Credit hours in institutional general education or core curriculum	NA
Credit hours required in support courses	NA
Credit hours in required or free electives	21
Credit hours for thesis or dissertation	24
Total credit hours required for completion	**72**

2. Will this program be related to other programs at your institution?

Yes.

If so, which ones and how?

This program will be related to the Human Environmental Sciences (M.S.H.E.S.) area of study in Human Nutrition from The University of Alabama. Students who graduate from that program may use nine credits of Nutrition coursework taken for the M.S.H.E.S. degree toward their 9 hours of nutrition electives in the Ph.D. program.

3. Please identify any existing program, option, concentration or track that this program will replace at your institution.

None.

4. Is it likely that this program will reduce enrollments in other graduate programs at your institution? If so, please explain.

No. There are not any comparable or competing doctoral level programs at The University of Alabama.

5. If this is a graduate program, please list any existing undergraduate programs at the institution which are directly or indirectly related to the proposed graduate program. If this is a Doctoral proposal, also list related master's programs at your institution.

The Department of Human Nutrition and Hospitality Management at The University of Alabama has a thriving undergraduate program with a B.S. in Food and Nutrition as well as a Master of Science degree program in Human Environmental Sciences (M.S.H.E.S.) with an area of study in Human Nutrition, with Fall 2016 enrollments of 690 and 116 (respectively.)

6. Please complete the table below indicating the proposed program's courses. Include the course number, and number of credits. (If feasible/useful, please group courses by sub-headings within the table.)

Course Number and Title	**Number of Credit Hours**	*** If New Course**
Required Courses (27 hours)		
NHM 601: Translational Nutrition and Nutrigenomics	3	*
NHM 602: Methods in Integrative Nutrition Assessment	3	*
NHM 603: Integrative Nutrition & Behavioral Interventions	3	*
NHM 690: Doctoral Studies Seminar	2	*
NHM 691: Grant Writing for Translational Nutrition Research	1	*
NHM 695: Interpretation of Nutrition Research	3	*
CHS 627: Multivariate Methods of Health Statistics	3	
NHM 625: Nutritional Epidemiology	3	
NHM 648: Secondary Analysis of Survey Data	3	
Statistics elective	3	
Research Hours (36 hours)		
NHM 698: Non-dissertation Research Hours	12	
NHM 699: Dissertation Research	24	
Nutrition Electives (9 hours)		
NHM 550: Advanced Community Nutrition I	3	
NHM 551: Advanced Community Nutrition II	3	
NHM 555: Maternal and Infant Nutrition	3	
NHM 556: Child and Adolescent Nutrition	3	
NHM 557: Childhood Obesity	3	
NHM 564: Nutrition in Interprofessional Practice	1	
NHM 565: Interdisciplinary Management of Chronic Disease	2	
NHM 568: Nutrition for the Older Adult	3	
NHM 590: Special Problems in Nutrition	Variable (1-6)	
NHM 610: Nutrition and Health Disparities	3	*
NHM 611: Nutritional Neuroscience	3	*
NHM 635: Advanced Practicum in Post-Secondary Dietetics Education	3	
NHM 697: Culinary Nutrition	Variable (1-6)	*

7. Enumerate and briefly describe any additional requirements such as preliminary qualifying examination, comprehensive examination, thesis, dissertation, practicum or internship, some of which may carry credit hours included in the list above.

Requirements for Admission:
Students may enter the program with either a bachelor's or master's degree in nutrition or a master's degree in a closely nutrition-related field.

Requirements for admission to the Ph.D. in Human Nutrition will be:

- A completed application, including a Statement of Purpose
- A current resume or curriculum vitae
- 3 letters of recommendation from faculty or other health professionals capable of judging the applicant's ability to complete graduate work.
- Test scores:
    - If a student has previously completed a Master's degree prior to beginning the Doctoral program and maintained a graduate GPA ≥3.5, their application will be considered without the need to submit a GRE score.
    - Students who have previously completed a Master's degree prior to beginning the Doctoral program with a graduate GPA of 3.3-3.49 may be considered for admission providing they also have a GRE score of ≥300. Upon admission, these students would need to receive permission to continue after the successful completion of 12 graduate hours.
    - Students with a Bachelor's degree will need to submit GRE scores. Minimum requirement for admission is a ≥300 on the GRE.

- If an applicant does not have a previous degree in nutrition, minimum prerequisite course work would include NHM 558: Nutrition in the Prevention and Treatment of Chronic Disease, NHM 561: Advanced Vitamins and Minerals, and NHM 562: Metabolism of Energy Nutrients. These would need to be completed prior to beginning the Ph.D. Nutrition Core coursework and would be applied towards completion of their nutrition electives. The sequencing of course offerings will be structured such that taking these prerequisites courses will not increase time to graduation nor will they require additional burden or heavier academic loads on the students in order to achieve a timely graduation.

- Additionally, if a student is admitted without having previously completed a Master's degree, they will need to complete HES 509 – Research Methods. The sequencing of course offerings will be structured such that taking prerequisites course(s) will not increase time to graduation nor will they require additional

burden or heavier academic loads on the students in order to achieve a timely graduation.

Coursework

The Ph.D. in Human Nutrition requires completion of 72 graduate hours, including 15 hours of nutrition core classes, 12 hours of statistics, 9 hours of nutrition electives, 12 hours of nondissertation research, and 24 hours of dissertation research.

- Students with a Master of Science degree in Human Environmental Sciences (M.S.H.E.S.) with an area of study in Human Nutrition from the University of Alabama may use the courses taken for the M.S.H.E.S. degree towards up to 9 hours of nutrition coursework in the Ph.D. program.

- Up to 12 hours of equivalent graduate nutrition coursework may be transferred in from a comparable Doctoral program to count towards completion of the Doctoral program requirements, providing those hours were not used towards completion of a degree at that institution.

Comprehensive Examination

By the end of the fifth semester in residence (not including summer terms) students must successfully complete a comprehensive candidacy exam.
This written comprehensive examination is required of all candidates for the Ph.D. degree. The core comprehensive exam will be offered on the second Thursday of January and the second Thursday of June each year. This exam should be prepared for by individual study expanding on the content covered in four core courses: NHM 601, NHM 602, NHM 603, and NHM 625. The exam must be passed unconditionally before the student can defend his/her proposal and be advanced to candidacy.

Prior to taking the exam, students must have completed their core course requirements, and at least 75% of their other didactic course work. We recommend that students take their comprehensive exams when they have completed the core course requirements. Students should NOT assume that "A" level performance in their coursework is adequate preparation for the comprehensive exam. Students must be registered for at least one semester hour of graduate work during the semester(s) in which the comprehensive exams are taken.

The exam is written and graded by the graduate faculty in the Doctoral program. Grading is performed in a blinded fashion, with each section being graded by the graduate faculty who taught the course. Each of the four sections is graded as "passed" or "failed". If any sections earn a score of "failed", the student will be required to meet with the PhD program coordinator to go over the feedback from the grader(s). The student has two weeks from this meeting to prepare for a retake of the sections that did not earn a "pass". Sections that were not passed on the initial examination can only be retaken once. If a student fails a section for the second time, they will be dismissed from the program per University Graduate School protocol.

The Comprehensive Exam will cover material outlined in the following core courses:

NHM 601: Translational Nutrition and Nutrigenomics
NHM 602: Methods in Integrative Nutrition Assessment
NHM 603: Integrative Nutrition & Behavioral Interventions
NHM 625: Nutritional Epidemiology

Doctoral Dissertation

The Doctoral dissertation is designed to provide students with a significant research experience and the ability to demonstrate their mastery of research design, implementation, and knowledge dissemination. Once students have successfully completed academic coursework and their comprehensive exams, they may then identify a dissertation committee, register for dissertation hours, and present their dissertation proposal. The Doctoral dissertation committee should include a minimum of five graduate faculty members with at least one committee member from outside of the home department. This committee will work with the student to develop an appropriate timeline and to ensure the student meets all University standards for documentation and research protocols appropriate for their respective department, college, and graduate school.

The Doctoral dissertation requires the completion of 24 hours of dissertation credit. Each student will work closely with his/her Doctoral program chair and his/her Doctoral dissertation committee in the development of a dissertation proposal. Upon completion of the dissertation research, a draft of the written dissertation is to be submitted no later than 2 weeks before the planned oral dissertation defense. Notice of this defense is to be posted throughout the college and will be announced via e-mail to faculty and currently enrolled graduate students. The student's committee will be in attendance, as well as any faculty or students from the University who may wish to attend.

8. Does the program include any options/concentrations. If so, please describe the purpose and rationale and list the courses in the option.

No. The core focus for the Human Nutrition Ph.D is in translational nutrition, i.e. joining distinct and independent areas of nutrition research into a collaborative effort to directly move specific nutrition research from the laboratory to the community in a "bench-to-bedside" approach. However, this focus is not a declared concentration as such.

H. Program Review and Assessment

In the final analysis, the institution and its governing board are accountable for the quality, utility, and productivity of this and all other programs of instruction.

With this in mind, please describe the procedures that will be used in assessing the program's outcomes.

Be sure to include:
1. An assessment process for the student learning outcomes;

Goal 1: Translational nutrition – Demonstrate proficiency in nutrition techniques that are integrated across discrete areas of nutrition research methodologies into a cohesive research agenda that moves nutrition research from the laboratory to the patient/community.

Outcome 1: All students will identify their role within a multidisciplinary collaborative nutrition research project.

Measure: Students will be able to design a research study, identifying the collaborators and skills needed to complete all aspects of a research project that demonstrates collaborative research techniques.
Where measured: Grant writing assignment within NHM 691: Grant Writing for Nutrition Research.

Outcome 2: Students will be able to describe community collaborative research practices.

Measure: All students will outline a research protocol utilizing community collaborative research practices.
Where measured: Comprehensive exams

Goal 2: Communication - Effectively communicate nutrition information, evidencing the ability to evaluate and interpret current research for presentation to the academic, scientific, and/or the lay community.

Outcome 1: Students will demonstrate the ability to orally present nutrition research to the academic, scientific, and/or lay community.

Measure 1: All students will present at least one completed research project at a state, national, or international conference.
Where measured: Student CV.

Outcome 2: Students will be able to present nutrition research, in writing, to the academic, scientific, and/or lay community.

Measure 1: All students will publish at least one completed research project in a peer-reviewed journal.
Where measured: Student CV.

Measure 2: All students will convey, in writing, nutrition research into interventions for the lay public.
Where measured: Educational materials for a behavioral, nutrition intervention in NHM 603: Nutrition Intervention.

Goal 3: Nutrition research practice – Demonstrate an understanding of relevant laboratory analyses methodologies, metabolic assessment techniques, and statistical research methodologies appropriate for developing strong, competitive research proposals.

Outcome 1: Students will assess dietary intake among research participants.

Measure: Students will complete dietary intake analyses with using at least 2 different research methodologies.
Where measured: Dietary intake analyses assignment in NHM 602: Nutrition Research Methodologies.

Outcome 2: Students will be able to utilize at least two laboratory instruments and obtain accurate data.

Measure 1: Students will assess body composition and energy expenditure using a correct protocol.
Where measured: Body composition assignment in NHM 602: Nutrition Research Methodologies.

Measure 2: Students will accurately assess at least one nutritional biomarker from either blood or urine.
Where measured: Biomarker assignment in NHM 602: Nutrition Research Methodologies

Goal 4: Independent research – Demonstrate the ability to support an independent career in research by successfully developing and implementing a research protocol, gathering data to effectively test the hypothesis (or hypotheses), and analyzing and interpreting the data.

Outcome 1: Students will be able to critically evaluate nutrition research and determine the gaps in the current research.

Measure: Students will submit for publication two manuscripts prior to graduation.
Where measured: Student CV.

Outcome 2: Students will be able to propose a research study, gather data

to effectively test research questions, analyze and interpret the data, and compare results to the body of research.

Measure 1: Students will develop a research protocol that assesses a gap in nutrition research.
Where measured: Dissertation proposal defense.

Measure 2: Students will gather data to effectively test research questions, analyze and interpret the data, and compare results to the body of research.
Where measured: Dissertation defense.

Goal 5: Effective Educators- Demonstrate skills of effective classroom presentation of nutrition related information.

Outcome 1: Students will be able to develop five lesson plans that include learning objectives, content, in-class assignments, and objective exam questions.

Measure: Students will develop and implement five lesson plans during a mentored teaching experiences.
Where measured: Faculty evaluation of mentored teaching experience.

Outcome 2: All students will be able to effectively use multiple educational strategies to engage undergraduate nutrition students.

Measure 1: Syllabus for course includes a variety of educational strategies.
Where measured: Faculty evaluation of mentored teaching experience.

Measure 2: Students within the Ph.D. student's course will rate the instructor at or above the campus average on "Student Opinion of Course and "Student Opinion of Instructor"
Where measured: Student Opinion of Instruction survey administered during teaching practicum.

2. A follow-up plan to determine accomplishments of graduates such as obtaining relevant employment or being admitted to a Master's or Doctoral program (graduate or professional).

Every 2 years, graduates of the Ph.D. in Human Nutrition program will be surveyed to determine current employment and/or participation in continuing education.

I. Accreditation

If there is a recognized (USDE or CHEA) or other specialized accreditation agency for this program, please identify the agency and explain why you do or not plan to seek accreditation. If there is no accrediting or similar body for this degree program state as such in your response.

The accrediting agency for registered dietitian/nutritionists, the Accreditation Council on Education in Nutrition and Dietetics (ACEND), accredits undergraduate programs at this time, and has put in place a mandate that all registered dietitian/nutritionists must have a graduate degree effective 2024 in order to become registered with the Academy of Nutrition and Dietetics. Our undergraduate program in Food and Nutrition is accredited with ACEND. However, ACEND does not presently offer accreditation for graduate programs that do not include a supervised practice component. Should ACEND offer such an accreditation opportunity for academic-only graduate programs in the future, we will seek to obtain that accreditation at that time.

J. Instructional Delivery Method

1. Describe which instructional delivery methods will be utilized in delivering this program.

Instructional delivery will occur through:

- Discussion-intensive seminars to foster open communication between faculty and students and to promote a questioning mind while developing the students' ability to effectively communicate nutrition knowledge.
- Expositive instruction with the incorporation of hands-on instruction to allow students to demonstrate mastery of advanced research-related skills.
- A limited amount of coursework will be offered in a hybrid format such that didactic learning can be available using online technology. This will strengthen the program by allowing those classes to use class time for more hands-on, interactive learning.

- Mentored projects and research.

2. If distance technology is being utilized, indicate an approximate percent of the total program's courses offered that will be provided by distance education___10___ %

3. If distance education is not being utilized, please explain why not.

While this program is designed to be an on-campus doctoral program, a limited number of classes will be offered in hybrid format, such that didactic learning can be available using online technology. This will strengthen the program by allowing those classes to use class time for more hands-on, interactive learning.

However, the intention at this time is to not offer the proposed program in a 100% distance education format. Doctoral-level instruction is typically not well-suited to distance education as it is dependent upon a high level of interaction between both the professors and the students. Effective learning depends upon active and lively discourse, with a rapid response ability not often found in the online format, as well as in-person learning (in the instance of laboratory instruction.)

K. Resource Requirements

1. *Faculty.* Do not attach the curriculum vitae of each existing or additional faculty members to this proposal. (The institution must maintain and have current and additional primary and support faculty curriculum vitae available upon ACHE request for as long as the program is active.) *Please do provide a brief summary of Faculty and their qualifications specific to the program proposal.*

a) Please provide faculty counts for the proposed program:

Status	Faculty Type	
	Primary	Support
Current- Full Time	11	2
Current-Part Time		
Additional-Full Time (to be hired)		
Additional-Part Time (to be hired)		

Brief summary of primary faculty and their qualifications specific to the program proposal

The proposed doctoral program in Human Nutrition has a focus on translational nutrition, i.e. implementing and promoting translational science approaches that foster collaborative bench-to-bedside-to-community approaches. The diverse areas of research expertise represented by the faculty in the Department of Human Nutrition and Hospitality Management and their strong history of collaboration across fields of nutrition research lend a robustness to the support of the academic programming and focus of this degree proposal.
Each research faculty member teaches a 2/2 load.

- Dr. Neggers (Professor, research faculty) has a Master's degree in Nutritional Sciences and a Ph.D. in Epidemiology. Her research interests are in the area of perinatal epidemiology and, more recently, risk factors associated with maternal mortality. She has published research related to possible role of various nutrients, particularly folic acid, and autism. She has conducted extensive research on the factors associated with low birth weight, a major factor associated with infant mortality in Alabama and the U.S.

- Dr. Kristi Crowe-White (Associate Professor, research faculty) is a registered dietitian, and has a Master's degree and a Ph.D. in Food Science. As a food chemist and registered dietitian, her research focuses on the impact of bioactive food compounds on reducing oxidative stress and inflammation as mechanisms underpinning cardio-metabolic diseases and vascular dysfunction.

- Dr. Linda Knol (Associate Professor, Director, Human Nutrition Graduate Program, research faculty) is a registered dietitian, has both a Master's degree and a Ph.D. in Nutrition with an emphasis in Public Health/Community Nutrition.

Dr. Knol's research focuses on the relationship between the home food environment, food insecurity, and mindfulness with nutritional status in children and young adults.

- Dr. Jeannine Lawrence (Associate Professor and Chair, Department of Human Nutrition and Hospitality Management, research faculty) is a registered dietitian, has a Master's degree in Clinical Nutrition, and a Ph.D. in Nutrition Science. Her research focuses on ethnic disparities in nutrition-related health mechanisms, older adult nutrition, and education of practitioners in interdisciplinary practice.

- Dr. Amy Ellis (Assistant Professor, research faculty) is a registered dietitian, has a Master's degree in Public Health Nutrition, and a Ph.D. in Nutrition Science. Dr. Ellis' research interests include geriatric nutrition, changes in body composition with aging, and nutritional influences on vascular function. Completed research includes: investigating micronutrient (beta-hydroxy-beta-methylbutyrate, glutamine, and arginine) effects on vascular endothelial function, validation of a tool to screen for undernutrition in patients with liver cirrhosis, and effects of the manipulation of dietary macronutrients on ethnic differences in the hormonal response to meals.

- Dr. Seung Eun Jung (Assistant Professor, research faculty) is a registered dietitian, has a Master's degree in Nutritional Sciences, and a Ph.D. in Nutritional Sciences. Dr. Jung's primary research interests focus on identifying factors influencing the nutritional status among underserved populations, such as rural older adults, and investigating the multidimensional determinants motivating decisions regarding food choices utilizing mixed methods. She has actively participated in both quantitative and qualitative research projects investigating factors influencing obesity and nutritional status among limited resource individuals.

- Dr. Kimberly Stran (Assistant Professor, teaching faculty) Dr. Stran is a registered dietitian, has a Master's degree in Clinical Nutrition, and a Ph.D. in Health Education and Promotion with an emphasis in Nutrition. Her area of expertise is weight regulation and factors influencing decision-making in meal choices, however as teaching faculty she is not required to maintain a research agenda.

- Dr. Libo Tan (Assistant Professor, research faculty) has a Bachelor's degree in Biological Sciences and a Ph.D. in Nutritional Sciences. As a Nutritional Biochemist, Dr. Tan's research focuses interest is the metabolism and kinetics of nutrients and dietary bioactive compounds in human body under different conditions. She applies compartmental analysis, an approach of mathematical modeling, for the investigation. Her current research projects include: the metabolism of vitamin A in neonates and investigating the impacts of obesity on the pharmacokinetics and physiologic distribution of lycopene.

Additional faculty that have been hired using existing faculty lines and will start August 2017:

- Ms. Joy Douglas (ABD, Ph.D. to be conferred May 2017; Assistant Professor) is a registered dietitian, has a Master's degree in Human Environmental Sciences with an emphasis in Human Nutrition, and will complete her Ph.D. in Health Education and Promotion with an emphasis in Nutrition. Her research focuses on clinical nutrition and the use of nutrition support practices, particularly with older adults.

- Dr. Lingyan Kong (Assistant Professor) has a Bachelor's degree in Food Science and Engineering and a Ph.D. in Food Science. Dr. Kong's areas of expertise include electrospinning of reinforced and functional starch fibers and the molecular encapsulation of bioactive food components to alter or enhance bioavailability.

- Dr. Han-A Park (Assistant Professor) has a Master's degree in Food and Nutrition and a Ph.D. in Nutrition. Her research area is in nutritional neuroscience, e.g. investigating nutrition interventions to regulate neuronal metabolism, growth, and cell death.

Reorganization of faculty teaching – The proposed program will require the development of 9 new courses (6 core and 3 electives.) With 3 new faculty members joining the department in Fall 2017 and expected teaching loads of 2/2 for each, it is anticipated that the proposed doctoral program will not pull teaching resources away from the existing B.S. and M.S. degrees in the department. However, specific courses may be reallocated among research faculty in order to pair each faculty member to a course or courses best suited to their area(s) of expertise.

b) Briefly describe the qualifications of new faculty to be hired.

N/A

2. Equipment. Will any special equipment be needed specifically for this program?

☐ Yes ☒ No

If "Yes", please list:

The cost of the new equipment should be included in the table following (Section K.).

3. Facilities. Will any new facilities be required specifically for the program?

[ ] Yes [x] No

If "Yes", please list. Only new facilities need be listed. Their cost should be included in the table following (Section K.).

4. Library. Are there sufficient library resources to support the program?

[x] Yes [ ] No

Please provide a brief description of the current status of the library collections supporting the proposed program.

The University of Alabama libraries are well-equipped to support the proposed program. The University of Alabama libraries maintain current subscriptions with greater than 100 e-journals based in food and nutrition subjects and maintain electronic access to archives of more than 100 more such journals. This electronic access includes subscriptions to some of the top tier journals in the nutrition field, including The Journal of the Academy of Nutrition and Dietetics, Journal of Parenteral and Enteral Nutrition, The Journal of Nutrition Education and Behavior, and Nutrients. Additionally, all students have access to Interlibrary Loan.

If "No", please briefly describe how any deficiencies will be remedied; include the cost in the table following (Section K.).

5. Assistantships/Fellowships. Will you offer any assistantships specifically for this program?

[x] Yes [ ] No

If "Yes", how many assistantships will be offered? Be sure to include the amount in the table following.

[11*] Number of assistantships offered

Be sure to include the cost of assistantships in the table following (Section K.).

*The Department of Human Nutrition and Hospitality Management is currently funded for 11 graduate assistant (GA) lines per year which are presently used to support Master's students. As Ph.D. students are admitted, these GA lines will be converted to Ph.D. students. While this conversion will, over time, decrease the number available to Master's students, this is not anticipated to be an issue. The Department of Human Nutrition and Hospitality Management is seeing a gradual decline in Master's students interested in traineeships on campus, such that, for the first time in recent years, there are currently only 6 applicants for the 11 traineeship

spots. Conversion of these assistantships to support doctoral students will therefore best support students who wish to train and need financial assistance, without an anticipated hardship to Master's students.
Therefore additional funding will not be needed to support these GA lines. Additionally, the department has been successful in the past in obtaining Graduate Council Fellowships as well as external funding for student support through extramural grants. By the fifth year of the proposed program, we anticipate being able to support an additional 6 doctoral students using extramural funding sources.

6. Program Budget .The proposal projected that a total of $ 0 in estimated new funds will be required to support the proposed program.

A projected total of $ 2,362,004 will be available to support the new program.

L. New Academic Degree Program Proposal Summary Form

- In the following "NEW ACADEMIC DEGREE PROGRAM PROPOSAL SUMMARY" table, please provide a realistic estimate of the costs of the program.
- This should only include the additional costs that will be incurred, not current costs.
- Indicate the sources and amounts of funds available for the program's support.
- DO NOT LEAVE ANY PORTION/SOURCES OF THE NEW FUNDS OR FUNDS AVAILABLE BLANK. ENTER "$0" IF THERE ARE NO NEW FUNDS NEEDED OR NO FUNDS AVAILABLE.
- THERE MUST BE AN ACTUAL DOLLAR AMOUNT PROVIDED FOR TUITION, SINCE THOSE FIGURES REPRESENT PROJECTED ENROLLED STUDENTS.
- **If it is stated that new funds are requested or if it is a reallocation of resources, please explain directly below from what source(s) the funds for the proposed new program, (e.g. faculty, equipment, etc.) will be attained.**

  No new funds are needed or requested for the development of the proposed program.

- **If tuition is used to support the program, what start-up revenue source will be used to initiate the program. Also, include enrollment and completer projections.**

  Faculty and facilities are available using existing faculty lines and departmental resources, so program start-up costs are not necessary.

Internal reallocations are represented by conversion of existing assistantships at 50% FTE from the Master's level to the doctoral program. Estimates are based on estimated annual assistantship costs of $25,218 (resident) and $41,698 (non-resident.)
Additionally, tuition monies will not be used directly to support the program. However, as overall enrollments do indirectly affect program success, tuition estimates are included in the table below.
Tuition estimates are based on the current enrollment of 53% non-resident students and tuition rates of $5,235 (resident) and $13,475 (non-resident) per semester.

- New enrollment headcounts are defined as **unduplicated** counts across years. For example, if "Student A" would be initially enrolled in the program in year 2, and again is enrolled in the program in years 4 and 5; "Student A" is only counted in the new enrollment headcount in year 2.

- Total enrollment headcounts represent the actual number of students enrolled (both part-time and full time each year. This is a **duplicated** count).

NEW ACADEMIC DEGREE PROGRAM PROPOSAL SUMMARY

INSTITUTION: The University of Alabama

PROGRAM: Human Nutrition Ph.D.

ESTIMATED NEW FUNDS REQUIRED TO SUPPORT PROPOSED PROGRAM

	Year 1	Year 2	Year 3	Year 4	Year 5	TOTAL
FACULTY	0	0	0	0	0	0
LIBRARY	0	0	0	0	0	0
FACILITIES	0	0	0	0	0	0
EQUIPMENT	0	0	0	0	0	0
STAFF	0	0	0	0	0	0
ASSISTANTSHIPS	0	0	0	0	0	0
OTHER	0	0	0	0	0	0
TOTAL	0	0	0	0	0	0

SOURCES OF FUNDS AVAILABLE FOR PROGRAM SUPPORT

	Year 1	Year 2	Year3	Year 4	Year 5	TOTAL
INTERNAL REALLOCATIONS	133,832	267,664	376,278	376,278	376,278	1,530,330
EXTRAMURAL		33,458	66,916	133,832	167,290	401,496
TUITION	30,727	61,454	99,863	115,226	122,908	430,178
TOTAL	164,559	362,576	543,057	625,336	666,476	2,362,004

ENROLLMENT PROJECTIONS AND DEGREE COMPLETION PROJECTIONS

Note: "New Enrollment Headcount" is defined as unduplicated counts across years.

	Year 1	Year 2	Year 3	Year 4	Year 5	5-YEAR AVERAGE
FULL TIME HEADCOUNT	4	8	13	14	15	10.8
PART TIME HEADCOUNT	0	0	0	1	1	0.4
TOTAL HEADCOUNT	4	8	13	15	17	11.4
NEW ENROLLMENT HEADCOUNT	4	4	5	5	6	4.8

						AVERAGE
DEGREE COMPLETION PROJECTIONS	0	0	3	4	5	4

The University of Alabama System Outline for New Program Proposal (Supplement)

1. Executive Summary

Background and Purpose: The purpose of the Ph.D. in Human Nutrition (CIP Code 19.0504) at The University of Alabama is to support the training and development of leaders in the field of nutrition. Graduates of the Ph.D. in Human Nutrition will be experts in nutrition research methodologies and translational nutrition, thereby efficiently advancing the field of nutrition through research to improve human health. Specific strengths of the program will align with the goals of the National Center for Advancing Translational Sciences (NCATS) at the National Institutes of Health. Established in 2011, the NCATS has the goal of carrying science across disciplines to bring innovations to improve human health in a more efficient manner. Similarly, the goals of the Human Nutrition (Ph.D.) program are to join distinct and independent areas of nutrition research into a collaborative effort to directly move specific nutrition research from the laboratory to the community in a "bench-to-bedside" approach. Graduates will be experts in collaborative nutrition research methods, including cross-training in different methods of implementation, translation, communication, and application of nutrition research to directly improve patient and population health. Additionally, the proposed program will develop nutrition leaders with terminal degrees that can then educate nutrition practitioners (at the Master's level) for advanced-level practice. In these manners, this program would support the University's mission "to advance the intellectual and social condition of the people of the State, the nation, and the world" by directly improving the knowledge and skills of dietetics and nutrition practitioners, who in turn can improve the health and quality of life of the residents of the state of Alabama, nationally, and worldwide.

Goals and Objectives: In accordance with the goals of the National Institutes of Health NCATS to implement and promote translational science approaches that foster collaborative bench-to-bedside-to-community approaches, a student who has completed this program in Human Nutrition will demonstrate mastery of:

1) Translational nutrition – Demonstrate collaborative techniques in nutrition research, incorporating discrete areas of nutrition research into an integrated research agenda that moves nutrition research from the laboratory to the patient/community.
2) Communication - Effectively communicate nutrition information, evidencing the ability to evaluate and interpret current research for presentation to the academic, scientific, and/or the lay community.
3) Nutrition research practice – Demonstrate an understanding of relevant laboratory analyses methodologies, metabolic assessment techniques, and statistical research methodologies appropriate for developing strong, competitive research proposals.
4) Independent research – Demonstrate the ability to support an independent career in research by successfully developing and implementing a research protocol, gathering data to effectively test the hypothesis (or hypotheses), and analyzing and interpreting the data.
5) Effective educators - Demonstrate skills of effective classroom presentation of nutrition related information.

Need for Program: Alabama, with 24.5% and 37.2% of adults residents who are obese or overweight (respectively), is among the top seven states in the nation for obesity and overweight prevalence. Obesity/overweight are a critical public health crisis. Not surprisingly, five of the top ten leading causes of death in the state of Alabama, including heart disease, cancer, stroke, diabetes, and kidney disease, are also directly related to poor dietary intake. This is particularly true for the top two leading causes of death in Alabama, heart disease and cancer, for which inappropriate dietary intake is a well-proven risk factor. As such, a doctoral program that uses translational nutrition methodology to identify collaborative methods of nutrition research, thereby moving nutrition interventions from the laboratory to the individual is a significant need to improve both individual patient and population health in Alabama.

Additionally, there is a growing demand for registered dietitians/nutritionists to meet the healthcare needs of the U.S. population, and increasing the number of Master's level trained nutrition professionals in the state of Alabama will have a direct benefit on improving the healthcare outlook and health of the residents of Alabama. The Workforce Demand Study conducted by the Academy of Nutrition and Dietetics projected a national deficit of trained nutrition professionals of 25% of the national estimated need by the year 2020 as the health of the nation continues to decrease, the average population age continues to increase, and the growing understanding and emphasis on the importance of nutrition in maintaining a healthy lifestyle outpaces the addition of new nutrition professionals entering the workforce. The increased need for registered dietitians is projected to be compounded by new national mandates governing the accreditation of registered dietitians. The accrediting agency for registered dietitians, the Academy of Nutrition and Dietetics' Accreditation Council on Education in Nutrition and Dietetics (ACEND), will require all registered nutrition practitioners to have a graduate degree at the Masters' level effective 2024. Therefore enrollment in graduate-level nutrition programs will continue to increase over the next decade, leaving a shortage of doctorally-prepared educators available to teach those students seeking a graduate education. This "domino effect" will necessitate a drastic increase in graduates of doctoral programs in order to meet the needs for educators at the graduate level. Additionally, ACEND is requiring that directors of existing nutrition programs must obtain a terminal degree to continue in their current position, also effective 2024 (see included letter of support in the Appendix.) This means that approximately 300 of the 600 nutrition program directors who do not currently have doctoral degrees must obtain terminal degrees in order to continue in their current positions. In and of itself, these two requirements from the national accrediting agency will result in a significant need for increased availability of doctoral programs as enrollment in doctoral programs will continue to increase over the next decade.

2. **Steps taken to determine if other UA System institutions might be interested in collaborating in the program.**

At this time, there is not a plan to collaborate with other institutions as all resources and faculty necessary for successful implementation of the proposed program are currently in place. However, a discussion has been initiated with a fellow institution in the UA System regarding the potential for future collaboration on graduate academic programming at such time as may be beneficial to both institutions.

3. **Desegregation impact statement**

The Department of Human Nutrition and Hospitality Management and the College of Human Environmental Sciences are committed to enhancing the diversity of its academic programs. We maintain a diverse faculty, with 31.6% of faculty being of ethnically-diverse backgrounds (other than non-Hispanic White) and representing 5 different cultures. In order to further enhance our faculty diversity we advertise available faculty positions in journals with high readerships from under-represented ethnicities. As strong, innovative nutrition faculty are often seeking employment in departments that have doctoral programs, implementation of the proposed doctoral program in Human Nutrition will augment the department's ability to attract additional highly sought-after, diverse faculty members, thereby further enhancing the diversity of the faculty.
In order to further diversify the student enrollment and increase recruitment from underrepresented groups, the graduate program director uses the McNair scholarship list supplied by the Graduate School to identify students who may be interested in pursuing graduate education in nutrition, and she reaches out to these potential students directly to provide them with program information and potential scholarship opportunities. The departmental website includes specific information about the department's undergraduate and graduate programs and specific faculty contact information in efforts to increase applications from out-of-state, international, and/or underrepresented students. Additionally, the department has curated a list of Historically Black Colleges and Universities that maintain Baccalaureate and Master's degree programs in a nutrition-related area. Pending approval of the proposed doctoral program in Human Nutrition, our department will reach out to these programs with information about both the doctoral program and any assistantship opportunities that may be available.

4. **Summary of consultant's comments (if any)**

N/A

5. **Summary of other campuses' comments (if any)**

Requests for input to the proposed program focus and courses were sent to the Department Chairs of each of the three universities in the UA system that maintain doctoral programs in a nutrition or food-related area. The Chair at one university did not provide feedback. The Chair at one university responded that they had concern with 5 of the proposed courses included in our doctoral curriculum. They felt that these courses, comprising 1 core course and 4 elective courses, contained some overlap with their program. We appreciated their feedback and, in response to their concerns, we removed

the 4 elective courses of concern from our proposed electives list. After consideration, we decided to retain the core course, NHM 691- Grant Writing for Nutrition Research (1 credit hour), in the core curriculum as grant writing is a common course in all major science-based, doctoral programs and is considered a foundational necessity for the successful training of nutrition researchers. An active and positive discourse was initiated with the Chair of the third department. While feedback about specific coursework was not provided, it was an opportunity for a discussion about the strengths of the relevant programs, their unique goals and foci, and the potential benefits that these different foci could have on all programs in future academic and research collaborations. The conversation included a discussion about collaboration between the two departments, and the door was left open with regards to collaboration on future academic programming and research opportunities that would be beneficial to both institutions.

6. Other pertinent information as needed (if any)

N/A

Accreditation Council for Education in Nutrition and Dietetics
the accrediting agency for the
Academy of Nutrition and Dietetics

120 South Riverside Plaza
Suite 2000
Chicago, Illinois 60606-6995
312.899.0040 ext. 5400
www.eatright.org/acend

December 19, 2016

To: Whom It May Concern

Fr: Mary B. Gregoire, PhD, RD; Executive Director

I am writing in strong support of the proposed Doctor of Philosophy (PhD) program in Human Nutrition at the University of Alabama. This program will help provide the doctoral prepared educators needed to teach in and direct future master degree programs in nutrition and dietetics.

Offering this doctoral degree program shows particular foresight by the University of Alabama faculty as the Commission on Dietetic Registration recently elevated the level of educational preparation for future entry-level Registered Dietitian Nutritionists (RDN) to a minimum of a graduate degree effective in 2024. The Accreditation Council for Education in Nutrition and Dietetics (ACEND) also believes that preparation of entry-level RDNs should be at the master degree level and has released proposed accreditation standards for future master degree programs. These standards include the expectation that program directors and faculty in these master degree programs hold doctoral degrees.

Presently, less than half of the directors of the nearly 600 ACEND-accredited programs hold a doctoral degree. Thus, the demand for doctoral prepared RDNs exists currently and will continue to grow as programs become accredited under the future education model master degree standards.

ACEND focuses on assuring the quality and continued improvement of nutrition and dietetics education programs and accredits nutrition and dietetics programs that meet its standards. Please feel free to contact me, if you have any questions or if we can provide any additional information for the proposed University of Alabama doctoral degree program: (312) 899-4872 or mgregoire@eatright.org.

Appendix B - Comparison of required core courses in existing doctoral-level nutrition-related programs with the current proposed program in Human Nutrition at The University of Alabama

The University of Alabama – Ph.D. in Human Nutrition	Alabama A&M University – Ph.D. in Food Science	Auburn University – Ph.D. Nutrition and a Ph.D. Nutrition with an option in Hotel and Restaurant Management * denotes core classes that are the shared between core M.S. and core Ph.D. requirements	The University of Alabama - Birmingham – Ph.D. in Nutrition Sciences
Core courses			
NHM 601: Translational Nutrition and Nutrigenomics	FAS 657: Analytical Techniques & Instrumentation	NTRI 7050/7056: Methods of Research*	NTR 621: Statistical Methods in Nutrition Science I
NHM 602: Methods in Integrative Nutrition Assessment	FAS 797: Seminar	NTRI 7280: Laboratory Methods in Food Science and Nutrition	NTR 623: Statistical Methods in Nutrition Science II
NHM 603: Integrative Nutrition & Behavioral Interventions	NRE 502: Scientific Writing in Biological Sciences	ERMA 7300/7306: Design and Analysis in Education I* or STAT 7000 Experimental Statistics I*	NTR 637: Applied Research in Nutrition Science
NHM 690: Doctoral Studies Seminar	NRE 529/530 (course title not listed)	ERMA 7310/7316: Design and Analysis in Education II or STAT 7010 Experimental Statistics II	NTR 690: Seminar
NHM 691: Grant Writing for Translational Nutrition Research	FAS 799: Research for Ph.D.	NTRI 7500/7506: Minerals*	NTR 718: Nutritional Biochemistry
NHM 695: Interpretation of Nutrition Research	Specialization hours (26) – courses could include • FAS 605: Special Problems • FAS 611: Food Toxicology • FAS 615: Food Enzymes	NTRI 7510: Vitamins*	NTR 733: Laboratory Instruments & Methods in Nutrition Research
CHS 627: Multivariate Methods of Health Statistics		NTRI 7530/7536: Human Nutrient Metabolism*	NTR 736: Scientific Methods
NHM 625: Nutritional Epidemiology		NTRI 8850: Research Seminar for Doctoral Program	NTR 747: Molecular Biology & Nutrition Sciences

NHM 648: Secondary Analysis of Survey Data	• FAS 617: Food Flavors and Pigments • FAS 632: Monogastric Nutrition & Metabolism • FAS 640: Product Development & Research • FAS 642: Minerals/Vitamins in Foods & Nutrition • FAS 644: Proteins in Foods and Nutrition • FAS 646: Carbohydrates/Lipids in Foods & Nutrition • FAS 654: Food Microbiological Techniques • FAS 658: Food Microstructure • FAS 671: Introduction to Biotechnology • FAS 672: Food Rheology • FAS 676: Food Processing and Nutrients • FAS 701: Advanced Food Microbiology • FAS 707: Advanced Food Chemistry • FAS 711: Advanced Food Toxicology • FAS 736: Advanced Sensory Evaluation • FAS 741: Advances in Nutrition	NTRI 8970/8976: Advanced Topics in Nutrition, Dietetics and Hospitality Management	NTR 779: Obesity in the 21st Century
Statistics elective			NTR 788: Advanced Nutrition Seminar

	• FAS 761 Advanced Food Engineering • FAS 771 Advanced Food Biotechnology • FAS 772 Advanced Food Processing • FAS 782 Advanced Food Packaging • FAS 796 Advanced Topics in Food Science		