Board of Governors, State University System of Florida

Request to Offer a New Degree Program
(Please do not revise this proposal format without prior approval from Board staff)

Florida A&M University
University Submitting Proposal
College of Agriculture and Food Sciences

Name of College(s) or School(s)
Food Science

Academic Specialty or Field
01.1001

Fall 2016
Proposed Implementation Term
Division of Agricultural Sciences

Name of Department(s)/Division(s)
B.S. in Food Science

Complete Name of Degree

Proposed CIP Code

The submission of this proposal constitutes a commitment by the university that, if the proposal is approved, the necessary financial resources and the criteria for establishing new programs have been met prior to the initiation of the program.

Date Approved by the University Board of Trustees: June 10, 2016

Signature of Chair, Board of Trustees

President

Date

Vice President for Academic Affairs

Date

4-26-16

Provide headcount (HC) and full-time equivalent (FTE) student estimates of majors for Years 1 through 5. HC and FTE estimates should be identical to those in Table 1 in Appendix A. Indicate the program costs for the first and the fifth years of implementation as shown in the appropriate columns in Table 2 in Appendix A. Calculate an Educational and General (E&G) cost per FTE for Years 1 and 5 (Total E&G divided by FTE).

<table>
<thead>
<tr>
<th>Implementation Timeframe</th>
<th>Projected Enrollment (From Table 1)</th>
<th>Projected Program Costs (From Table 2)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>HC</td>
<td>FTE</td>
</tr>
<tr>
<td>Year 1</td>
<td>40</td>
<td>35</td>
</tr>
<tr>
<td>Year 2</td>
<td>49</td>
<td>43</td>
</tr>
<tr>
<td>Year 3</td>
<td>61</td>
<td>52</td>
</tr>
<tr>
<td>Year 4</td>
<td>63</td>
<td>55</td>
</tr>
<tr>
<td>Year 5</td>
<td>75</td>
<td>65</td>
</tr>
<tr>
<td></td>
<td>$8,474</td>
<td>$550,825</td>
</tr>
</tbody>
</table>
INTRODUCTION

I. Program Description and Relationship to System-Level Goals

A. Briefly describe within a few paragraphs the degree program under consideration, including (a) level; (b) emphases, including majors, concentrations, tracks, or specializations; (c) total number of credit hours; and (d) overall purpose, including examples of employment or education opportunities that may be available to program graduates.

Food Science is the study of the physical, biological, and chemical makeup of food; and the concepts underlying food processing is the basis of what Forbes magazine has described as the world’s biggest industry. It is an applied science that utilizes disciplines such as biology, chemistry, physics, mathematics, and engineering in an attempt to better understand food processes and ultimately improve food products for the consumer. The Institute of Food Technology, IFT, is the largest food science organization in the world and is recognized as the principal professional organization with an authoritative voice concerning issues associated with food science, food technology and the food industry.

The first classes in Food Science were offered in the College of Agriculture and Food Sciences, CAFS (formerly the College of Engineering Sciences Technology and Agriculture) in 1994 following support from the Title III program to develop a food science curriculum. Food Science is currently offered as a major in the Bachelor of Science in Agricultural Sciences. It graduated its first student with a Bachelor of Science degree in 1996 and to date there has been over 100 graduates.

This proposal seeks permission from the FAMU Board of Trustees to permit the College of Agriculture and Food Sciences to offer a stand-alone Bachelor of Science degree program in Food Science with the following two tracks: (1) Science and Technology and (2) Business and Industry. The Science and Technology track will prepare students for graduate school and the more technical areas of the food industry. Graduates of the Business and Industry track will be better prepared to enter into the food industry in areas of technical and business management. All students will have to complete 120 credit hours in either track to obtain the Bachelor of Science degree.

The Bachelor of Science degree in Food Science at Florida A&M University (FAMU) will permit the university to make a stronger contribution to the food industry in the State of Florida and better fulfill its State, Land-grant, and traditional missions. Graduates of this degree program will have many opportunities for employment in the private and government sectors. Examples of areas in which Food Science jobs are found include food product development, food quality control, food safety inspection, food manufacturing, food emergency management, and food research. These jobs are found in Government departments such as Agriculture, Defense, Health and Human Services, Commerce and State. The private sector food science jobs are in companies that deal with commodities such as meats, vegetables, fruits, beverages, cereal, dairy, and flavors. In addition there are many Non-Governmental Organizations, NGOs, which utilize the skills of food scientists as they fulfill their mission, especially when it involves providing food or teaching food preservation to food producers.

Graduates of this degree will also be able to pursue graduate degrees in food science
and because of the program’s strong academic content they will also be able to gain entry into professional schools as well as graduate programs in other disciplines. Additionally, those with an entrepreneurial spirit will be able to join the numerous entrepreneurs who have found great success in all fields of the food industry. All of these opportunities have been obtained by current FAMU graduates majoring in Food Science and there will be even more opportunities for graduates with a Bachelor of Science degree in the subject area instead of a major.

B. Please provide the date when the pre-proposal was presented to CAVP (Council of Academic Vice Presidents) Academic Program Coordination review group. Identify any concerns that the CAVP review group raised with the pre-proposed program and provide a brief narrative explaining how each of these concerns has been or is being addressed.

The proposed degree in Food Science to be offered at Florida A&M University was reviewed by the CAVP Academic Program Coordination group at its February 7, 2014 meeting. The proposal was recommended with no concerns.

C. If this is a doctoral level program please include the external consultant’s report at the end of the proposal as Appendix D. Please provide a few highlights from the report and describe ways in which the report affected the approval process at the university.

NA

D. Describe how the proposed program is consistent with the current State University System (SUS) Strategic Planning Goals. Identify which specific goals the program will directly support and which goals the program will indirectly support (see link to the SUS Strategic Plan on the resource page for new program proposal).

The Florida State University System, SUS, 2012-2025 strategic plan revolves around three main themes of Excellence, Productivity, and Strategic Priorities for a Knowledge Economy. These points drive the priorities of the SUS, which are teaching and learning, scholarship, research, and innovation, and community and business engagement. The proposed degree in Food Science is consistent with the SUS strategic plan in its three main themes and areas of priority.

Food Science excellence at FAMU will be the result of a BS degree in Food Science. It will raise the bar with respect to academic instruction, research and community engagement. This degree will make the academic offerings in the agricultural sciences in the College of Food and Agriculture more complete and competitive with peer institutions. It will also enhance the food science research environment in a College that houses many excellent research programs. The presence of the BS Food Science degree program will permit the College and University to have a higher quality of engagement with our community and businesses in matters relating to food especially in the areas of food safety, food security, food manufacturing, food composition and the large number of obesity related issues.

This degree will result in students from traditionally underrepresented groups and returning adults having improved the access to and completion of a degree in food science and preparation for entry into the food industry. It will ensure that the College has a critical mass of faculty so that its research and commercialization activities will be more productive. The students in this degree will have many opportunities to engage in
research with faculty and be involved in the community.

Food Science is an applied science that utilizes all of the named Science, Technology, Engineering and Mathematics, STEM, areas and is recognized as a stem discipline. The degree in Food Science in FAMU’s College of Agriculture and Food Sciences (CAFS) will improve the access of Florida’s students to training in a STEM area, which is considered a strategic priority for a knowledge economy. A well-established Food Science degree program will have the capacity to attract and compete successfully for external funding. The BS in Food Science will produce graduates for Florida jobs and graduate school as evidenced by the productivity of the current major.

E. If the program is to be included in a category within the Programs of Strategic Emphasis as described in the SUS Strategic Plan, please indicate the category and the justification for inclusion.

The Programs of Strategic Emphasis Categories:
1. Critical Workforce:
   • Education
   • Health
   • Gap Analysis
2. Economic Development:
   • Global Competitiveness
3. Science, Technology, Engineering, and Math (STEM)

Please see the Programs of Strategic Emphasis (PSE) methodology for additional explanations on program inclusion criteria at the resource page for new program proposal.

Food Science is in the STEM area of Programmatic Strategic Emphasis as described in the SUS Strategic Plan. It is also included in the Department of Homeland Security’s 2012 STEM-Designated degree program list for international students seeking OPT (Optional Practical Training) visas. Food Science is also recognized as a STEM list of occupations listed by the Florida Department of Economic Opportunity.

F. Identify any established or planned educational sites at which the program is expected to be offered and indicate whether it will be offered only at sites other than the main campus.

The BS in Food Science degree will be offered at the main FAMU campus located in Tallahassee using the primary CAFS buildings of Perry-Paige and the Teleconference Center. The program will also have access to the two auxiliary CAFS sites namely its farm in Quincy and the Viticulture Center on Mahan Drive. All students will be required to have an internship prior to graduation and all of these will be done at sites that are not affiliated with FAMU but are institutions engaged in the food science production, research, service or instruction. The Food Science faculty prior to a student beginning an internship will preapprove every site.

INSTITUTIONAL AND STATE LEVEL ACCOUNTABILITY

II. Need and Demand

A. Need: Describe national, state, and/or local data that support the need for more people to be prepared in this program at this level. Reference national, state, and/or local plans or
Food is a driver of economic development and its globalization in recent years has driven the need for persons with training in the food sciences. This need was recognized in the Food Safety Modernization Act of 2010, which directed the FDA to hire 1000 new field staff by 2014. This will in turn ensure that the private sector has to hire more food scientists so that they may be in compliance with the new laws and regulations being promulgated. The February / March 2014 issue of Food Quality Magazine states “Changes in the food industry, including increased regulatory attention on food safety, are having profound effects on career development paths and opportunities for food safety professionals, according to experts involved in industry and academia.”

The Department of Labor’s Bureau of Labor Statistics has predicted a 10% growth in Food Scientists jobs but this is an underestimate because of the difficulty in defining all food science jobs due to the nature of the food industry. For example a food safety job in a meat plant may also be classified under microbiology, animal science, and analytical chemistry to name but three other categories. In 2012 data from the Florida Department of Economic Opportunity lists 160 Food Scientists employed in Florida, but the same data lists another 40,300 jobs under the categories of Agricultural and Food Science Technicians, Biological Technicians, Chemical Technicians, Food Service Managers, Life Scientists and Technical Sale Representatives, all of which may be filled by a Food Science graduate.

Agriculture and tourism are the two largest industries in Florida and Food is one means that joins them. The tourism sector not only needs for food to be abundant, tasty, and moderately priced but also to be safe whereas the agricultural sector needs to keep its produce safe, extend its shelf life and add value. Food manufacturing is the second largest in the Florida manufacturing sector and contributes more than $5 billion to the state’s GDP. However, despite being a national agricultural power, a tourist mecca and having the fourth largest population Florida is not in the top ten food processing states. There is thus an increased need for more food processing in the state and by extension more workers trained in food science.

At the national level the training of African-Americans in Food Science at the BS level is very low and this leads to an even lower representation at the graduate level. Data from the Food and Agricultural Education Information System, FAEIS, an online database supported by the USDA’s National; Institute of Food and Agriculture, only twenty five of the 790 students enrolled in Fall 2012 in Food Science in Land-Grant schools were African-American. The enrollment numbers in the non-Land-Grant Colleges is even worse with 8 of the 379 students enrolled in Fall 2012 classified as African-Americans. There is thus no only a great need for more trained food scientists in the state and nation but the need for more African-Americans to be trained as food scientists is even greater. The FAEIS data also shows that nationwide the growth in Food Science enrollment of over 50% in the last decade thus indicating that the need for trained food scientist is national and not restricted to just minorities.

B. Demand: Describe data that support the assumption that students will enroll in the proposed program. Include descriptions of surveys or other communications with
prospective students.

The major in Food Science in FAMU’s College of Agriculture and Food Science has consistently been able to enroll more than 30 students each semester for most of its existence and in the last two years this number has reached as high as 60. In the current academic year the program has attracted its largest ever freshman class of ten students based on the recruitment outreach. Students will be interested in what would be the only degree in the university to provide a legitimate entry for students into the food, nutrition and culinary industries as professionals as well as a pathway to other professional fields such as medicine, public health and law.

C. If substantially similar programs (generally at the four-digit CIP Code or 60 percent similar in core courses), either private or public exist in the state, identify the institution(s) and geographic location(s). Summarize the outcome(s) of communication with such programs with regard to the potential impact on their enrollment and opportunities for possible collaboration (instruction and research). In Appendix C, provide data that support the need for an additional program.

The University of Florida, UF, is the only university in Florida with an IFT approved Food Science degree. The Food Science Department of the University of Florida has expressed support for a new BS degree in Food Science at FAMU and welcomes the additional training available to prepare Floridians for the great careers in the Food Industry (see Appendix C). A degree in food and nutrition sciences is also offered at Florida State University. During its existence we have had no students leave UF for FAMU in food science or vice versa.

The two universities draw their students from differing demographic groups and there is no reason to believe that a degree in Food Science at FAMU would impact the University of Florida. In fact the growing need for a diverse pool of food scientists would only be enhanced by the State’s two land-grant schools providing training in food science as they do now in agricultural sciences. FAMU Food Science is currently supporting UF’s Department of Food Science and Human Nutrition’s proposal for a National Needs Fellowship grant to develop food safety professionals with a focus on process validation principles through an integrated food safety and processing graduate program.

D. Use Table 1 in Appendix A (1-A for undergraduate and 1-B for graduate) to categorize projected student headcount (HC) and Full Time Equivalents (FTE) according to primary sources. Generally undergraduate FTE will be calculated as 40 credit hours per year and graduate FTE will be calculated as 32 credit hours per year. Describe the rationale underlying enrollment projections. If students within the institution are expected to change majors to enroll in the proposed program at its inception, describe the shifts from disciplines that will likely occur.

The College of Agriculture and Food Sciences currently offers a major in Food Science within the existing BS Agricultural Sciences. Approximately 40 students are currently enrolled in the existing major as of Spring 2016. It is anticipated that at least 30 of those students will migrate into the proposed degree in Food Science upon approval in year one as shown in Table 1-A. In year two, we expect a small increase of students,
approximately 10, to sustain a healthy enrollment in the new program. However, by year five it is anticipated that the program will have grown to about 75 students.

E. Indicate what steps will be taken to achieve a diverse student body in this program. If the proposed program substantially duplicates a program at FAMU or FIU, provide, (in consultation with the affected university), an analysis of how the program might have an impact upon that university’s ability to attract students of races different from that which is predominant on their campus in the subject program. The university’s Equal Opportunity Officer shall review this section of the proposal and then sign and date Appendix B to indicate that the analysis required by this subsection has been completed.

FAMU is an equal opportunity and equal access university and the BS degree in Food Science will uphold that mission. The new BS degree will actively recruit students from all high schools and community colleges in Florida with no regard to race, color, religion, creed, gender, national origin, disability, marital or veteran status, or any other legally protected status. CAFS has both a diverse student and faculty body and this degree program will build upon this diversity to ensure that all students encounter a supportive environment regardless of race, color, religion, creed, gender, national origin, disability, marital, or veteran status.

III. Budget

A. Use Table 2 in Appendix A to display projected costs and associated funding sources for Year 1 and Year 5 of program operation. Use Table 3 in Appendix A to show how existing Education & General funds will be shifted to support the new program in Year 1. In narrative form, summarize the contents of both tables, identifying the source of both current and new resources to be devoted to the proposed program. (Data for Year 1 and Year 5 reflect snapshots in time rather than cumulative costs.)

As the data in Table 2 in Appendix A indicate, the bulk of the costs for this program will be in the form of faculty salaries and benefits. The faculty that support the existing major in Food Science will continue to teach in the proposed BS Food Science. One lab technician will also support the program. The other expenses, not itemized in either table, include expenses for program publicity, marketing, such as advertising and brochures; supplies and materials.

B. Please explain whether the university intends to operate the program through continuing education on a cost-recovery basis, seek approval for market tuition rate, or establish differentiated graduate-level tuition. Provide a rationale for doing so and a timeline for seeking Board of Governors’ approval, if appropriate. Please include the expected rate of tuition that the university plans to charge for this program and use this amount when calculating cost entries in Table 2.

NA

C. If other programs will be impacted by a reallocation of resources for the proposed program, identify the impacted programs and provide a justification for reallocating resources. Specifically address the potential negative impacts that implementation of the proposed program will have on related undergraduate programs (i.e., shift in faculty effort, reallocation of instructional resources, reduced enrollment rates, greater use of adjunct faculty and teaching assistants). Explain what steps will be taken to mitigate any such impacts. Also, discuss the potential positive impacts that the proposed program
might have on related undergraduate programs (i.e., increased undergraduate research opportunities, improved quality of instruction associated with cutting-edge research, improved labs and library resources).

The implementation of the Food Science degree will impact the number of students in the B.S. in Agricultural Sciences degree. However, Food Science and Animal Science majors have been responsible for the bulk of degrees offered under this degree. Also, the implementation of this degree will impact instructional resources and will result in less adjunct faculty being used. Resources allocated to this program will impact no other instructional program in the College.

D. Describe other potential impacts on related programs or departments (e.g., increased need for general education or common prerequisite courses, or increased need for required or elective courses outside of the proposed major).

The increase in students created by the BS in Food Science degree will not lead to a major need for any additional general education or elective courses outside of the degree to be offered.

E. Describe what steps have been taken to obtain information regarding resources (financial and in-kind) available outside the institution (businesses, industrial organizations, governmental entities, etc.). Describe the external resources that appear to be available to support the proposed program.

The Food Science program has had relationships with Florida’s government agencies such as the Department of Agriculture and Consumer Services (FDACS) and the Florida Department of Health. It has also developed relationships with private companies such as Publix Manufacturing, Miller Coors, and Sanderson Farms. Some of these entities have provided resources to support the academic program in the form of scholarships, internships and jobs to our current students. It is quite likely that a degree program will only help create a more supportive environment for both government and private food agencies to support the program. In 2013 the program received a grant from the USDA to develop a consortium to support preparation of students for the food industry.

IV. Projected Benefit of the Program to the University, Local Community, and State

Use information from Tables 1 and 2 in Appendix A, and the supporting narrative for “Need and Demand” to prepare a concise statement that describes the projected benefit to the university, local community, and the state if the program is implemented. The projected benefits can be both quantitative and qualitative in nature, but there needs to be a clear distinction made between the two in the narrative.

This Food Science degree program would be of significant benefit to FAMU, the local community (including surrounding counties), and the state of Florida. As shown in Table 1 at least 75 students will be enrolled in the program by the fifth year making it a major contributor to the growing food industry in Florida and the largest producer of minority
food scientists in the State and maybe the nation. FAMU will reap immediate benefit from this program even before the first graduates are produced. These early benefits will occur as the program builds stronger linkages with the food industry, leading to FAMU being recognized as a major center of food training which will lead to numerous opportunities for the university in the area of food education and training at all levels. However, most of the benefits will be made possible through the actions of the students and faculty in the program.

Student activity in the forms of volunteering in the community as well as pursuing internship opportunities with local food institutions will be beneficial to the local community. They will be able to impact the community especially those with few resources, by performing services in areas such as food safety, food preservation, nutrition education, food preparation and food storage and handling. This student activity will be generated by student club activity and assignments by the faculty.

The Food industry in Florida as a whole will benefit from the largest concentration of food scientists in North Florida. Besides the obvious benefit provided by their instructional duties, the faculty will perform research and be resource persons to the community. The type of research conducted by faculty in the Food Science program will be aimed at finding solutions to food problems affecting the state of Florida, especially those affecting North Florida and the FAMU clientele. They will also be able to support the push for enhanced STEM activities in Florida and contribute to the resolution of community food issues.

V. Access and Articulation – Bachelor’s Degrees Only

A. If the total number of credit hours to earn a degree exceeds 120, provide a justification for an exception to the policy of a 120 maximum and submit a separate request to the Board of Governors for an exception along with notification of the program’s approval. (See criteria in Board of Governors Regulation 6C-8.014)

The proposed BS Food Science will be 120 credit hours in length.

B. List program prerequisites and provide assurance that they are the same as the approved common prerequisites for other such degree programs within the SUS (see link to the Common Prerequisite Manual on the resource page for new program proposal). The courses in the Common Prerequisite Counseling Manual are intended to be those that are required of both native and transfer students prior to entrance to the major program, not simply lower-level courses that are required prior to graduation. The common prerequisites and substitute courses are mandatory for all institution programs listed, and must be approved by the Articulation Coordinating Committee (ACC). This requirement includes those programs designated as “limited access.”

If the proposed prerequisites are not listed in the Manual, provide a rationale for a request for exception to the policy of common prerequisites. NOTE: Typically, all lower-division courses required for admission into the major will be considered prerequisites. The curriculum can require lower-division courses that are not prerequisites for admission into the major, as long as those courses are built into the curriculum for the upper-level 60
credit hours. If there are already common prerequisites for other degree programs with the same proposed CIP, every effort must be made to utilize the previously approved prerequisites instead of recommending an additional “track” of prerequisites for that CIP. Additional tracks may not be approved by the ACC, thereby holding up the full approval of the degree program. Programs will not be entered into the State University System Inventory until any exceptions to the approved common prerequisites are approved by the ACC.

The following courses listed below are the approved common prerequisites for Food Science as found in the Common Prerequisite Manual of the State University System. All of these prerequisites are included in the proposed Science and Technology track in the Food Science degree program at FAMU and would be required of all students regardless of their mode of entry into this degree track. Students in the Business and Industry track will be required to take all of the prerequisites listed below except for MAC 2311, calculus.

**BSC 1010 & 1010L** (or BSC X010C, BOT X0101 & X0101L, BOT X0101C, ZOO X0101 & X0101L, ZOO X010C)

**BSC 1011 & 1011L** (or BSC X011C, BOT X0111 & X0111L, BOT X0111C, ZOO X011 & X011L, ZOO X011C)

**CHM 1045 &1045L** (or CHM 1045C, CHM X040 & X041 & X045L)

**CHM 1046 & 1046L** (or CHM X046C)

**ECO 2013** (or ECO X023)

**PHY 2053 & 2053L** (or PHY X004 & X004L)

**STA 2023** (or STA X014 or STA X122)

**MAC 2311**

C. If the university intends to seek formal Limited Access status for the proposed program, provide a rationale that includes an analysis of diversity issues with respect to such a designation. Explain how the university will ensure that Florida College System transfer students are not disadvantaged by the Limited Access status. NOTE: The policy and criteria for Limited Access are identified in Board of Governors Regulation 6C-8.013. Submit the Limited Access Program Request form along with this document.

FAMU does not plan to seek Limited Access status for the BS Food Science degree.

D. If the proposed program is an AS-to-BS capstone, ensure that it adheres to the guidelines approved by the Articulation Coordinating Committee for such programs, as set forth in Rule 6A-10.024 (see link to the Statewide Articulation Manual on the resource page for new program proposal). List the prerequisites, if any, including the specific AS degrees which may transfer into the program.

NA
INSTITUTIONAL READINESS

VI. Related Institutional Mission and Strength

A. Describe how the goals of the proposed program relate to the institutional mission statement as contained in the SUS Strategic Plan and the University Strategic Plan (see link to the SUS Strategic Plan on the resource page for new program proposal).

The goal of the BS in Food Science is to increase the number of persons who are trained in the Food Sciences and able to support the food industry in Florida. This degree supports the FAMU goal 1.4 of enhancing the current academic degree programs and goal 1.5 of developing new degrees to meet market and student demand.

B. Describe how the proposed program specifically relates to existing institutional strengths, such as programs of emphasis, other academic programs, and/or institutes and centers.

The degree in Food Science will build upon the strengths in Agricultural research in CAFS as well as other STEM activities in the University. In CAFS it will permit greater integration with the centers for Water and Air Quality, Viticulture, and Biological Control in dealing with food challenges faced by the people of Florida. For example, a strong Food Science program can accelerate the push to expand the food uses of the muscadine grape by the Center for Viticulture as well as partner with the Center for Biological Control in developing food safety measures to protect the nation’s food supply against invasive species.

C. Provide a narrative of the planning process leading up to submission of this proposal. Include a chronology in table format of the activities, listing both university personnel directly involved and external individuals who participated in planning. Provide a timetable of events necessary for the implementation of the proposed program.

Planning Process

<table>
<thead>
<tr>
<th>Date</th>
<th>Participants</th>
<th>Planning Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan 30, 2012</td>
<td>Anderson, Sr., Lee; Cooper, Adrienne; James Neil; Jolly, Lue; Kairo, Moses; Musingo, Mitwe; Onokpise, Oghenekome; Paul, Harriett; Phillips, Bobby; Pitter, Gita; Richardson, Vonda; Sarjeant, Keawin; Thomas, Marlon; Thomas, Verian; Walters, Lurleen; and Wright, Glen</td>
<td>Dean’s Ad Hoc committee established to examine resources in the College and determine how best to use the resources to enhance Food Science in the College of Agriculture and Food Sciences</td>
</tr>
<tr>
<td>February 20, 2012</td>
<td>James. Neil; Musingo, Mitwe; Onokpise, Oghenekome; and Cooper, Adrienne</td>
<td>Meeting reviewed suggestions received regarding development of a BS in Food Science degree.</td>
</tr>
<tr>
<td>March 19, 2012</td>
<td>James. Neil; Jolly, Lue; Mobley,</td>
<td>Discussed how and where the College</td>
</tr>
</tbody>
</table>
Ray; Musingo, Mitwe; Onokpise, Oghenekome; Richardson, Vonda; Thomas, Verian; and Walters, Lurleen of Agriculture and Food Sciences can find resources for a stand-alone BS program in Food Science.

<table>
<thead>
<tr>
<th>Date</th>
<th>Implementation Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spring 2015</td>
<td>All new courses in the curriculum will be submitted for approval by the University</td>
</tr>
<tr>
<td>Summer 2016</td>
<td>Recruitment of the First BS in Food Science Freshmen class</td>
</tr>
</tbody>
</table>

VII. Program Quality Indicators - Reviews and Accreditation

Identify program reviews, accreditation visits, or internal reviews for any university degree programs related to the proposed program, especially any within the same academic unit. List all recommendations and summarize the institution's progress in implementing the recommendations.

The major in Food Science was part of the state-required seven-year review conducted by the university in regard to the agricultural programs at FAMU and was also reviewed as part of the USDA review of Land-grant programs. The later review clearly recommended the program’s elevation to a full degree. If the BS degree in Food Science is approved for IFT recognition, the program will be subject to a review every five years by the Institute of Food Technologists for the IFT approved degree together with an annual report after approval.

The consultant also indicated that the Food Science program will be strengthened as Research and Extension programs in CAFS are strengthened. The recently hired nutrition faculty will have an extension assignment and the new food science faculty will have a research assignment. The existing food science faculty are 100% academic and although the College remains committed to split appointments, it still has not been implemented. The split assignments being given to the new faculty will aid in strengthening the food science program and the extension and research activities should have a positive impact as well on the overall enhancement of CAFS’ academic programs.

The reviewer recommended that Food Science explore linkages with other programs such as Health. The new BS degree in Food Science will help make this collaboration easier. We have already received positive support from Public Health for a joint BS-MPH program, but as with other collaborations nothing substantial will be done without there being a BS in Food Science. Furthermore, the recent move by the university to list minors on degree diplomas will provide an opportunity for other majors to pursue a minor in Food Science.

VIII. Curriculum

A. Describe the specific expected student learning outcomes associated with the proposed program. If a bachelor's degree program, include a web link to the Academic Learning Compact or include the document itself as an appendix.
All students in the B.S. of Food Science degree will be expected to fulfill the following student learning outcomes:

<table>
<thead>
<tr>
<th>Intended Student learning Outcomes</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Outcome 1 Communication Skills</strong></td>
<td>Graduates will demonstrate proficiency in written, oral and visual communication within the Food Sciences.</td>
</tr>
<tr>
<td><strong>Outcome 2 Content Knowledge</strong></td>
<td>Graduates will be able to apply discipline specific knowledge and skills to solve problems related to food as it travels from the farm to the consumer.</td>
</tr>
<tr>
<td><strong>Outcome 3 Critical Thinking Skills</strong></td>
<td>Graduates will demonstrate research proficiency as evidenced by the application of the scientific method to problems/issues in the Food Sciences.</td>
</tr>
<tr>
<td><strong>Outcome 4 Application of Knowledge and Skills</strong></td>
<td>Graduates will be able to apply curricular and co-curricular knowledge and skills in the field of Food Sciences.</td>
</tr>
<tr>
<td><strong>Outcome 5 Life Long Learning</strong></td>
<td>Graduates will possess the requisite knowledge and skills for entry into graduate programs.</td>
</tr>
</tbody>
</table>

B. Describe the admission standards and graduation requirements for the program.

The admission requirements for this degree will be the same as the general University entrance requirements.

C. Describe the curricular framework for the proposed program, including number of credit hours and composition of required core courses, restricted electives, unrestricted electives, thesis requirements, and dissertation requirements. Identify the total numbers of semester credit hours for the degree.

The degree will consist of 120 credit hours. Both options will consist of 36 hours of general education and 30 hours of core food science courses. The Science and Technology option will consist of 30 hours of support courses and 24 hours of track and elective courses. The Business and Industry option will consist of 29 hours of support courses. Current students in Food Science will be allowed to change their program from a major in food science in the BS in Agricultural Science degree to the BS in Food Science degree proving that they are not beyond the junior year. The Science and Technology option in the BS in Food Science requires current majors to do 17 different credit hours and the Business and Industry option requires 19 different credit hours during the junior and senior years. It would thus be possible for students who have not passed the junior year to substitute these new credit hours with a minimum of change to their 120 credit hour degree.

D. Provide a sequenced course of study for all majors, concentrations, or areas of emphasis within the proposed program.
BS in Food Science, Science and Technology Option

Freshman Year

<table>
<thead>
<tr>
<th>Course Number and Name</th>
<th>Credit Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>AGG 2004, Intro. to Agric. Sciences</td>
<td>1</td>
</tr>
<tr>
<td>AMH 2091 African American History</td>
<td>3</td>
</tr>
<tr>
<td>BSC 1010, General Biology I</td>
<td>3</td>
</tr>
<tr>
<td>BSC 1010L, General Biology I Lab</td>
<td>1</td>
</tr>
<tr>
<td>ENC 1101 Freshman Comm. Skills I</td>
<td>3</td>
</tr>
<tr>
<td>SPC 2608 Public Speaking</td>
<td>3</td>
</tr>
<tr>
<td>BSC 1011, General Biology II</td>
<td>2</td>
</tr>
<tr>
<td>BSC 1011L General Biology II Lab</td>
<td>2</td>
</tr>
<tr>
<td>CHM 1045, General Chemistry I</td>
<td>3</td>
</tr>
<tr>
<td>CHM 1045L, General Chem. I Lab.</td>
<td>1</td>
</tr>
<tr>
<td>ENC 1102, Freshman Comm. Skills II</td>
<td>3</td>
</tr>
<tr>
<td>FOS 2002, Food and Man</td>
<td>3</td>
</tr>
<tr>
<td><strong>TOTAL CREDITS</strong></td>
<td><strong>31</strong></td>
</tr>
</tbody>
</table>

Sophomore Year

<table>
<thead>
<tr>
<th>Course Number and Name</th>
<th>Credit Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHM 1046, General Chemistry II</td>
<td>3</td>
</tr>
<tr>
<td>CHM 1046L General Chemistry II Lab</td>
<td>1</td>
</tr>
<tr>
<td>MAC 1147, Pre-Calculus Mathematics</td>
<td>4</td>
</tr>
<tr>
<td>HUN 2401 Human Nutrition</td>
<td>3</td>
</tr>
<tr>
<td>Humanities General Education Requirement</td>
<td>3</td>
</tr>
<tr>
<td>CHM 2210, Organic Chemistry 1</td>
<td>3</td>
</tr>
<tr>
<td>CHM 2210L, Organic Chemistry 1 Lab</td>
<td>1</td>
</tr>
<tr>
<td>MAC 2311 Calculus with Analytic Geometry</td>
<td>4</td>
</tr>
<tr>
<td>ECO 2013, Principles of Economics I</td>
<td>3</td>
</tr>
<tr>
<td>FOS 3042, Introduction to Food Science</td>
<td>3</td>
</tr>
<tr>
<td>FOS 3042L Introduction to Food Science Lab</td>
<td>1</td>
</tr>
<tr>
<td><strong>TOTAL CREDITS</strong></td>
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</tr>
</tbody>
</table>

Junior Year

<table>
<thead>
<tr>
<th>Course Number and Name</th>
<th>Credit. Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHM 2211, Organic Chemistry 2</td>
<td>3</td>
</tr>
<tr>
<td>CHM 2211L, Organic Chemistry 2 Lab</td>
<td>1</td>
</tr>
<tr>
<td>MCB 3010C General Microbiology with Lab</td>
<td>4</td>
</tr>
<tr>
<td>FOS 4425C Food Manufacturing &amp; Storage with Lab</td>
<td>4</td>
</tr>
<tr>
<td>STA 2023 Intro. to Probability &amp; Statistics I</td>
<td>3</td>
</tr>
<tr>
<td>BCH 4033 Biochemistry I</td>
<td>3</td>
</tr>
<tr>
<td>BCH 4033L Biochemistry I Laboratory</td>
<td>1</td>
</tr>
<tr>
<td>PHI 3601, Ethics</td>
<td>3</td>
</tr>
<tr>
<td>FOS 3063, Food Science Careers and Opportunities</td>
<td>1</td>
</tr>
<tr>
<td>FOS 4222C Food Microbiology and Safety with Lab</td>
<td>4</td>
</tr>
<tr>
<td>PHY 2053 College Physics</td>
<td>3</td>
</tr>
<tr>
<td>PHY 2053L College Physics Lab.</td>
<td>1</td>
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</tbody>
</table>
### Senior Year

<table>
<thead>
<tr>
<th>Course Number and Name</th>
<th>Credit Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>FOS 3XXX, Principles of Food Engineering</td>
<td>3</td>
</tr>
<tr>
<td>FOS 4311, Food Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>FOS 4311L, Food Chemistry Laboratory</td>
<td>1</td>
</tr>
<tr>
<td>FOS 4454C, Food Fermentation</td>
<td>3</td>
</tr>
<tr>
<td>FOS 4XXX, Food Science Internship</td>
<td>3</td>
</tr>
<tr>
<td>MAN 3025, Principles of Management</td>
<td>3</td>
</tr>
<tr>
<td>FOS 4321C, Food Analysis</td>
<td>4</td>
</tr>
<tr>
<td>FOS 4435C, Food Product Development</td>
<td>3</td>
</tr>
<tr>
<td>FOS XXXX, Food Science Elective</td>
<td>3</td>
</tr>
<tr>
<td>Restricted Elective</td>
<td>3</td>
</tr>
<tr>
<td><strong>TOTAL CREDITS</strong></td>
<td><strong>29</strong></td>
</tr>
</tbody>
</table>

**FOUR YEAR CREDIT TOTAL**

<table>
<thead>
<tr>
<th>Course Number and Name</th>
<th>Credit Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>FOS 4XXX, Principles of Food Engineering</td>
<td>3</td>
</tr>
<tr>
<td>MAN 3025, Principles of Management</td>
<td>3</td>
</tr>
<tr>
<td>Restricted Elective</td>
<td>3</td>
</tr>
<tr>
<td><strong>TOTAL CREDITS</strong></td>
<td><strong>29</strong></td>
</tr>
</tbody>
</table>

*Restricted Electives are determined in consultation with the advisor and the courses are offered in the College of Agriculture and Food Sciences.*

### BS in Food Science, Business and Industry Option

#### Freshman Year

<table>
<thead>
<tr>
<th>Course Number and Name</th>
<th>Credit Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>AGG 2004, Intro to Agric. Sciences</td>
<td>1</td>
</tr>
<tr>
<td>AMH 2091, African American History</td>
<td>3</td>
</tr>
<tr>
<td>BSC 1010, General Biology I</td>
<td>3</td>
</tr>
<tr>
<td>BSC 1010L, General Biology I Lab.</td>
<td>1</td>
</tr>
<tr>
<td>ENC 1101, Freshman Comm. Skills I</td>
<td>3</td>
</tr>
<tr>
<td>SPC 2608, Public Speaking</td>
<td>3</td>
</tr>
<tr>
<td>BSC 1011, General Biology II</td>
<td>2</td>
</tr>
<tr>
<td>BSC 1011L, General Biology II Lab.</td>
<td>2</td>
</tr>
<tr>
<td>CHM 1045, General Chemistry I</td>
<td>3</td>
</tr>
<tr>
<td>CHM 1045L, Gen. Chemistry I Lab.</td>
<td>1</td>
</tr>
<tr>
<td>ENC 1102, Freshman Comm. Skills II</td>
<td>3</td>
</tr>
<tr>
<td>FOS 2002, Food and Man.</td>
<td>3</td>
</tr>
<tr>
<td>SYG 2000 or PSY 2012, Social Science Gen. Ed.</td>
<td>3</td>
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<tr>
<td><strong>TOTAL CREDITS</strong></td>
<td><strong>31</strong></td>
</tr>
</tbody>
</table>

#### Sophomore Year

<table>
<thead>
<tr>
<th>Course Number and Name</th>
<th>Credit Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHM 1046, General Chemistry I</td>
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</tr>
<tr>
<td>CHM 1046L, General Chemistry I Lab.</td>
<td>1</td>
</tr>
<tr>
<td>Course Number and Name</td>
<td>Credit Hrs.</td>
</tr>
<tr>
<td>---------------------------------------------------------------------------</td>
<td>-------------</td>
</tr>
<tr>
<td>MAC 1147 Pre-Calculus Mathematics</td>
<td>4</td>
</tr>
<tr>
<td>ECO 2013, Prin. of Economics I</td>
<td>3</td>
</tr>
<tr>
<td>Humanities Gen. Education Req.</td>
<td>3</td>
</tr>
<tr>
<td>CHM 2210, Organic Chemistry 1</td>
<td>3</td>
</tr>
<tr>
<td>CHM 2210L, Organic Chemistry 1 Lab.</td>
<td>1</td>
</tr>
<tr>
<td>MAC 2233 Business Calculus</td>
<td>3</td>
</tr>
<tr>
<td>HUN 2401 Human Nutrition</td>
<td>3</td>
</tr>
<tr>
<td>FOS 3042, Introduction to Food Science</td>
<td>3</td>
</tr>
<tr>
<td>FOS 3042L, Introduction to Food Science Lab</td>
<td>1</td>
</tr>
<tr>
<td>FOS 2XXX Seminar in Food Business</td>
<td>1</td>
</tr>
<tr>
<td><strong>TOTAL CREDITS</strong></td>
<td><strong>29</strong></td>
</tr>
</tbody>
</table>

**Junior Year**

<table>
<thead>
<tr>
<th>Course Number and Name</th>
<th>Credit Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>MCB 3010C Microbiology with Lab</td>
<td>4</td>
</tr>
<tr>
<td>FOS 4425C Food Manufacturing &amp; Storage with Lab</td>
<td>4</td>
</tr>
<tr>
<td>PHY 2053 College Physics</td>
<td>3</td>
</tr>
<tr>
<td>PHY 2053L College Physics Lab.</td>
<td>1</td>
</tr>
<tr>
<td>STA 2023 Introduction to Probability &amp; Statistics I</td>
<td>3</td>
</tr>
<tr>
<td>ACG 2021 Financial Accounting Principles</td>
<td>3</td>
</tr>
<tr>
<td>AEB 3300 Marketing of Agricultural Products</td>
<td>3</td>
</tr>
<tr>
<td>ECO 2023, Prin. of Economics II</td>
<td>3</td>
</tr>
<tr>
<td>PHI 3601, Ethics</td>
<td>3</td>
</tr>
<tr>
<td>FOS 3063, Food Science Careers and Opportunities</td>
<td>1</td>
</tr>
<tr>
<td>FOS 4222C Food Microbiology and Safety with Lab</td>
<td>4</td>
</tr>
<tr>
<td><strong>TOTAL CREDITS</strong></td>
<td><strong>32</strong></td>
</tr>
</tbody>
</table>

**Senior Year**

<table>
<thead>
<tr>
<th>Course Number and Name</th>
<th>Credit Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>FOS 4454C Food Fermentation</td>
<td>3</td>
</tr>
<tr>
<td>FOS 4XXX Food Science Internship</td>
<td>3</td>
</tr>
<tr>
<td>FOS 4XXX, Food Selection and Preparation</td>
<td>3</td>
</tr>
<tr>
<td>Free Elective</td>
<td>3</td>
</tr>
<tr>
<td>MAN 3025 Prin. of Management</td>
<td>3</td>
</tr>
<tr>
<td>BUL 4130, Legal Environment of Business</td>
<td>3</td>
</tr>
<tr>
<td>FOS 4321C or FOS 4311 &amp; 4311L, Food Analysis or Food Chemistry</td>
<td>4</td>
</tr>
<tr>
<td>FOS 4435C, Food Product Development</td>
<td>3</td>
</tr>
<tr>
<td>Restricted Elective*</td>
<td>3</td>
</tr>
<tr>
<td><strong>TOTAL CREDITS</strong></td>
<td><strong>28</strong></td>
</tr>
</tbody>
</table>

**FOUR YEAR CREDIT TOTAL**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>120</strong></td>
</tr>
</tbody>
</table>

*Restricted Electives are determined in consultation with the advisor and the courses are offered in the College of Agriculture and Food Sciences*

E. Provide a one- or two-sentence description of each required or elective course.
FOS 2002, Food and Man (3) An introductory course that reviews the origins and development of food and examines its interaction with society by examining factors influencing food consumption, food behavior, food trends and food policies.

FOS 2XXX Seminar in Food Business (1) A seminar that exposes students to the business aspects of food and the types of business practices done in the food industry.

FOS 3XXX, Principles of Food Engineering (3) An introductory course to the engineering principles used in the food industry

FOS 3042, Introduction to Food Science (3) A general introductory course in food science that includes aspects of food preservation and processing, food safety, food additives, food legislation and regulation.

FOS 3042L, Introduction to Food Science Lab (1) A laboratory course to accompany FOS 3042. Students are able to test the theoretical principles covered in the lecture through laboratory experiment.

FOS 3121, Sensory Science (3) Trains students to measure sensory characteristics of food and use the results to evaluate factors affecting food quality.

FOS 3429, Processing of Plant Foods (3) The scientific principles involved in the various methods of fruit and vegetable harvesting, pre-processing and processing techniques are discussed using lectures and demonstrations.

FOS 4XXX, Food Selection and Preparation (3) A course in the methods used by food institutions in the selection and preparation of food for consumers.

FOS 4XXX, Food Science Internship (3) Supervised attachments at various food organizations thereby providing students with hands on experience and exposure to a working environment in the food industry.

FOS 4202, Food Sanitation (3) Covers the principles associated with sanitation in food processing and preparation operations.

FOS 4222C, Food Microbiology and Safety (4) A lecture and laboratory course in food microbiology with particular reference to food production, spoilage, preservation, sanitation and poisoning. Food safety is also covered.

FOS 4311, Food Chemistry (3) The chemical composition of foods is examined especially as related to food properties and function. Reaction mechanisms of chemical processes affecting food quality are discussed.

FOS 4311L, Food Chemistry Laboratory (1) Laboratory course to accompany FOS 4311. Students are able to test the theoretical principles covered in the lecture through laboratory experiment.

FOS 4321C, Food Analysis (4) Application of physical and chemical analytical methods to the quantitative determination of various food constituents and additives.
FOS 4425C, Principles of Food Manufacturing and Safety with Lab (4) The scientific principles governing the various methods of food manufacturing and storage are explained. An Accompanying lab links theory and practice.

FOS 4435C, Food Product Development (3) A capstone course that integrates knowledge gained in prior courses. It provides an opportunity for students to utilize their knowledge in the conceptualization and development of a new food product(s).

FOS 4454C, Food Fermentations (3). Microbiological, chemical and physical aspects of diverse food fermentations are discussed with emphasis on grape fermented products.

FOS 4641, Functional Foods (3) Discusses the physiological effects of foods and food components capable of promoting good health and preventing or alleviating diseases.

FOS 4731, Food Laws and Regulation (3) Reviews the history of food law and examines the impact of mandatory and optional food laws and regulations exercised by state, federal and international agencies on food quality, safety, and nutrition.

FOS 4942, Food Safety Practicum (3) A course in food safety practice done through interaction with government and industry food safety activities.

F. For degree programs in the science and technology disciplines, discuss how industry-driven competencies were identified and incorporated into the curriculum and indicate whether any industry advisory council exists to provide input for curriculum development and student assessment.

The academic guidance issued by the Institute of Food Technology served as a guide in developing the curriculum and courses. Although there is not an advisory council for the Food Science program, one of the outcomes of the current USDA Capacity Building grant will be the formation of a public/private consortium and this body will act as the industry line within the program. The major has a long history of faculty interactions with industry persons via common service committees and visits, which have provided avenues for input.

G. For all programs, list the specialized accreditation agencies and learned societies that would be concerned with the proposed program. Will the university seek accreditation for the program if it is available? If not, why? Provide a brief timeline for seeking accreditation, if appropriate.

The major learned society that would be associated with the new degree in Food Science would be the Institute of Food Technologists (IFT). The program would expect to be in a position to seek IFT credentialing by its third year in existence provided there is sufficient enrollment to warrant it. The IFT resource guide for approval and re-approval of undergraduate programs is in the Appendix. The principal obstacle to approval will be processing facilities.
H. For doctoral programs, list the accreditation agencies and learned societies that would be concerned with corresponding bachelor’s or master’s programs associated with the proposed program. Are the programs accredited? If not, why?

NA

I. Briefly describe the anticipated delivery system for the proposed program (e.g., traditional delivery on main campus; traditional delivery at branch campuses or centers; or nontraditional delivery such as distance or distributed learning, self-paced instruction, or external degree programs). If the proposed delivery system will require specialized services or greater than normal financial support, include projected costs in Table 2 in Appendix A. Provide a narrative describing the feasibility of delivering the proposed program through collaboration with other universities, both public and private. Cite specific queries made of other institutions with respect to shared courses, distance/distributed learning technologies, and joint-use facilities for research or internships.

The delivery method is expected to be predominantly traditional in the early years but in keeping with the goals of the university many courses will become hybrids and some exclusively online. Online courses are expected to increase with faculty growth and as the university attempts to reach more nontraditional and students unable to travel to Tallahassee for a variety of reasons.

Currently there are no ongoing discussions to offer joint programs with other State schools. However, there are currently online class links with some HBCUs.

IX. Faculty Participation

A. Use Table 4 in Appendix A to identify existing and anticipated full-time (not visiting or adjunct) faculty who will participate in the proposed program through Year 5. Include (a) faculty code associated with the source of funding for the position; (b) name; (c) highest degree held; (d) academic discipline or specialization; (e) contract status (tenure, tenure-earning, or multi-year annual [MYA]); (f) contract length in months; and (g) percent of annual effort that will be directed toward the proposed program (instruction, advising, supervising internships and practica, and supervising thesis or dissertation hours).

See Table 4 in Appendix A.

B. Use Table 2 in Appendix A to display the costs and associated funding resources for existing and anticipated full-time faculty (as identified in Table 2 in Appendix A). Costs for visiting and adjunct faculty should be included in the category of Other Personnel Services (OPS). Provide a narrative summarizing projected costs and funding sources.

Tables 4 and 2 provide a picture of the human and fiscal resources required to execute this degree program in food science over a five year period, 2016 to 2021. The fiscal data has been calculated using a fringe rate of 34% for faculty and 43% for USPS. Information from these tables when combined with data from Table 1 shows that the E&G cost per student FTE will start at $15,323 in 2016 and fall to $8,474 in the fifth year and that the personnel required will increase from 3.25 faculty person-year and 1 USPS FTE in year one to 3.58 faculty person-year and 1 USPS FTE in year 5.
In the initial year, 2016, current faculty Drs. James and Musingo, will be joined by a nutritionist and another food scientist and each faculty will provide 0.75 person-year of service. Position number 17113000, has been transferred into the Food Science program for employment of a nutritionist as well as position number 19592000 for employment of a Food Scientist. Both of these positions were filled Fall 2015. Dr. Sarjeant will provide 0.25 C&G person year of service but his service is expected to grow to 0.5 person year by the fifth year due to enrollment growth. The Food Engineer will teach a food engineering course requiring 0.08 person-year of service. A full-time laboratory technician will also support the degree program.

Expenditures in the fifth may increase over the year one budget due to an increase in the use of Dr. Sarjeant’s services due to the need for more classes caused by student growth and this growth will also cause expenses to grow from $10,000 to $20,000.

C. Provide in the appendices the abbreviated curriculum vitae (CV) for each existing faculty member (do not include information for visiting or adjunct faculty).

See Appendix B

D. Provide evidence that the academic unit(s) associated with this new degree have been productive in teaching, research, and service. Such evidence may include trends over time for average course load, FTE productivity, student HC in major or service courses, degrees granted, external funding attracted, as well as qualitative indicators of excellence.

For most of the last decade two full time faculty assisted by an adjunct faculty has primarily manned this program. Despite this the faculty has been productive in teaching research and service. In the past five years, Spring 10 to Fall 14, the program has offered an average of 29 undergraduate credit hours per semester to an average of 244 students using primarily 2 Full time faculty and 1 adjunct faculty. (See table below)

<table>
<thead>
<tr>
<th>Semester / Year</th>
<th>Food Science Credits</th>
<th>Number of Students</th>
<th>Full time Faculty</th>
<th>Adjunct Faculty</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spring 10</td>
<td>25</td>
<td>194</td>
<td>2.2</td>
<td>1</td>
</tr>
<tr>
<td>Fall 10</td>
<td>35</td>
<td>199</td>
<td>2.2</td>
<td>1</td>
</tr>
<tr>
<td>Spring 11</td>
<td>31</td>
<td>238</td>
<td>2.2</td>
<td>1</td>
</tr>
<tr>
<td>Fall 11</td>
<td>31</td>
<td>318</td>
<td>2.2</td>
<td>1</td>
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<tr>
<td>Spring 12</td>
<td>30</td>
<td>300</td>
<td>2.2</td>
<td>1</td>
</tr>
<tr>
<td>Fall 12</td>
<td>31</td>
<td>286</td>
<td>2.2</td>
<td>1</td>
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<tr>
<td>Spring 13</td>
<td>23</td>
<td>208</td>
<td>1.2</td>
<td>3</td>
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<tr>
<td>Fall 13</td>
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<td>269</td>
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<td>Spring 14</td>
<td>24</td>
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<tr>
<td>Fall 14</td>
<td>29</td>
<td>213</td>
<td>2.2</td>
<td>1</td>
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<tr>
<td><strong>Totals</strong></td>
<td><strong>290</strong></td>
<td><strong>2436</strong></td>
<td><strong>21</strong></td>
<td><strong>12</strong></td>
</tr>
<tr>
<td><strong>Average</strong></td>
<td><strong>29.0</strong></td>
<td><strong>243.6</strong></td>
<td><strong>2.1</strong></td>
<td><strong>1.2</strong></td>
</tr>
</tbody>
</table>
During this period the program also graduated 29 undergraduate and 2 graduate (MS) students. The faculty have also pioneered a videoconference class, AGG 4420, with other HBCUs, executed a grant to expose our students to food safety in the government sector, and obtained a $147,000 grant from the USDA to improve food industry opportunities for our students.

Although teaching has been the primary focus of the faculty in order to meet current enrollment demands, a few research projects have been performed. Two graduate students who graduated in 2012 both conducted research, made conference presentations, and a publication is in preparation. With the hiring of new faculty in 2015, increased research productivity is expected of the program.

The faculty has demonstrated a commitment to service both on and off campus. On campus, they currently serve on the General Education Assessment Committee, Curriculum Committee, College Assessment Committee, and the Library committee to name those that meet regularly. Off campus faculty skills have been used in civic organizations and committees of the state government.

X. Non-Faculty Resources

A. Describe library resources currently available to implement and/or sustain the proposed program through Year 5. Provide the total number of volumes and serials available in this discipline and related fields. List major journals that are available to the university’s students. Include a signed statement from the Library Director that this subsection and subsection B have been reviewed and approved.

LIBRARY RESOURCES IN SUPPORT OF THE COLLEGE OF AGRICULTURE AND FOOD SCIENCES
Prepared by FAMU Librarians, February 2012 and Revised November 2014

Collections
Library resources and services are sufficient to ensure the achievement of the goals and outcomes of the College of Agriculture and Food Sciences. The University Libraries provide collections of current books, periodicals, and pertinent reference materials, which are readily accessible to students and are sufficient in scope to support the Agriculture and Food Sciences curriculum. The Samuel H. Coleman Memorial Library (the main library) and branch libraries provide traditional print, as well as electronic access to full text databases, e-journals, and e-books.

The following table shows library holdings targeted for use by the general campus and community population, as well as holdings targeted to support the College of Agriculture and Food Sciences.

<table>
<thead>
<tr>
<th>Library Resources</th>
<th>General</th>
<th>Agriculture</th>
<th>Food Sciences</th>
</tr>
</thead>
<tbody>
<tr>
<td>Holdings</td>
<td>1,450,857</td>
<td>117,986</td>
<td>4,890</td>
</tr>
</tbody>
</table>
### Library Resources

<table>
<thead>
<tr>
<th>Category</th>
<th>Books</th>
<th>Microforms</th>
<th>Media</th>
<th>Electronic books</th>
<th>Journals/Serials</th>
<th>Electronic Journals</th>
<th>Electronic databases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>1,258,072</td>
<td>112,362</td>
<td>3,753</td>
<td>203,899</td>
<td>3,753</td>
<td>112,362</td>
<td>3,753</td>
</tr>
</tbody>
</table>

In addition to the library resources cited above, FAMU is a depository for United States government documents. This collection contains more than 4,891 full-text electronic titles and 156,949 print volumes. Of this number, 24,740 government documents are related to agriculture and 21,417 are available online.

The University maintains borrowing agreements and memberships that mutually enhance resources availability for FAMU and other Florida learning communities. Partnerships are with the State University Libraries of Florida, the Florida College System Libraries and the State Library of Florida. Memberships are with the Florida Virtual Campus (FLVC), and the FLVC Florida Distance Learning and Student Services. Florida public postsecondary college and university libraries provide services directly and indirectly to students and faculty of State of Florida postsecondary institutions. Over 108,873 volumes held by the other 40 Florida public postsecondary institutions supplement the FAMU social work collections. The following information details the additional resources and services available to FAMU students and faculty.

### Libraries

<table>
<thead>
<tr>
<th>Libraries</th>
<th>General Resources</th>
<th>Agriculture</th>
<th>Food Sciences</th>
</tr>
</thead>
<tbody>
<tr>
<td>State of Florida Universities</td>
<td>15,257,337</td>
<td>239,129</td>
<td>14,938</td>
</tr>
<tr>
<td>Florida College System</td>
<td>4,883,380</td>
<td>5,384</td>
<td>209,314</td>
</tr>
</tbody>
</table>

Faculty and students also have access to the Publication of Archival, Library & Museum Materials (PALMM) Collection. This collection is a cooperative initiative of the public Universities of Florida to provide digital access to unique archival resources for research and scholarship. The PALMM collection contains 478 items related to Agriculture.

### Budget

The following chart illustrates the University Libraries’ funding over the last five years and its expenditures for Agriculture and Food Sciences programs during that period.
University Libraries Budget

<table>
<thead>
<tr>
<th>Year</th>
<th>2009-2010</th>
<th>2010-2011</th>
<th>2011-2012</th>
<th>2012-2013</th>
<th>2013-2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>Library</td>
<td>$2,551,096.00</td>
<td>$2,500,401.00</td>
<td>$2,625,803.00</td>
<td>$3,417,950.00</td>
<td>3,511,311.00</td>
</tr>
<tr>
<td>Budget</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Expenditures for Agriculture and Food Sciences

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Books</td>
<td>$26,964.00</td>
<td>$13,268.00</td>
<td>$7,913.00</td>
<td>$24,898.00</td>
<td>$28,450.00</td>
</tr>
<tr>
<td>Journals</td>
<td>$18,252.00</td>
<td>$22,645.00</td>
<td>$143,738.00</td>
<td>$155,214.00</td>
<td>$166,855.00</td>
</tr>
<tr>
<td>Databases</td>
<td>$556,810.00</td>
<td>$590,206.00</td>
<td>$613,983.00</td>
<td>$754,852.00</td>
<td>$763,230.00</td>
</tr>
<tr>
<td>Total</td>
<td>$602,026.00</td>
<td>$626,119.00</td>
<td>$765,634.00</td>
<td>$934,964.00</td>
<td>$958,535.00</td>
</tr>
</tbody>
</table>

In addition to the funds provided by the University, several electronic resources in support of Agriculture and Food Sciences are funded by the Florida Center for Library Automation at an annual cost of approximately $405,952.

Access to Collections and Services

Students, faculty and staff have access to collections, resources and services 24 hours a day, seven days a week, either through the 141 hours that the main library is open or through the library web page. Through the University Libraries’ web page, faculty and students have full access to the FAMU library catalog on or off campus, and the library catalogs of the State University System and Florida College System libraries. Online resources and services are available within the libraries, from campus computers, in faculty offices, and from residence halls. Off-campus access is also available 24 hours a day to authenticated users (students, faculty, and staff). Support services such as instruction, interlibrary loans, loan renewals, course reserves, reference assistance, and distance learning services are also accessible from the web page.

Services

FAMU Libraries provide a full range of traditional and innovative library services. Users have access to reference services via local and toll free telephone, electronic mail, online chat service (AskALibrarian), and fax. Services enable users to access and to use information resources in the libraries and from remote locations. The Information Commons, in Coleman Library, allows users to access main library services from one common area. Several Library services are available from this service point. Services include borrowing privileges, interlibrary loan, course reserves, reference and research services, and systems support services.
Borrowing Privileges
Students, faculty, and staff have borrowing privileges at the FAMU Libraries, and reciprocal borrowing privileges to the 40 public universities and colleges in Florida. Borrowers may view and renew items that are currently checked out through the online catalog.

Interlibrary Loan
Students, faculty, and staff who are currently enrolled and engaged in academic research have Interlibrary Loan (ILL) borrowing privileges to the 40 public universities and colleges in Florida and to other libraries globally. Requests may be initiated in person or through the online catalog, which along with reciprocal borrowing and the provision of licensed databases, provides access to materials that the University does not own.

Course Reserves
Print and electronic materials may be placed on reserve at the Libraries. The reserve service provides a central and convenient location for students to retrieve materials. These materials are owned by the University or come from the private collections of faculty who place materials on reserve for enrolled students.

Reference and Research Services
On site and virtual reference/research services are provided. Reference Services include individual research/consultation, the provision of electronic and print research guides and the provision of online tutorials. Reference librarians provide a variety of instructional services to meet the information literacy needs of students, faculty, staff, administrators, and the community at large.

Instruction/Information Literacy
The University Libraries provide competent, quality, and timely instruction through a variety of instructional services. Information is delivered through informal and point of use instruction, individual and group instruction, formal orientations and literacy sessions, orientation to new student groups, subject specific scheduled workshops, printed handouts, research guides and online tutorials. Instruction is provided to local users as well as to distance learners. Information literacy sessions are designed to equip users with the skills needed to locate, evaluate, and use library information resources and services. Formal literacy instruction is based upon goals as defined by classroom faculty. These classes are held in state-of-the-art classrooms, which allow hands-on interactive instruction. Library instruction is based upon guidelines published by the Association of College and Research Libraries (ACRL) Guidelines for Instruction Programs in Academic Libraries.

Liaison Program
Librarians work with all academic units to assure that the collection supports defined curricular goals and that adequate services, including instruction are provided. The College of Agriculture and Food Sciences has appointed a representative to the Library Collection Development Committee. This liaison works in collaboration with the subject librarian for the College of
Agriculture and Food Sciences as well as other librarians to evaluate, select, and purchase resources recommended for Agriculture and Food Sciences programs.

**Systems Support Services**

The Systems Department provides and maintains 250 public computers along with software, hardware and support services necessary for providing and using information resources. Computers are configured to provide access to the libraries’ web page and online catalog. Computers are also configured with various types of production software allowing users’ access to the Microsoft Office Suite (Word, Excel, PowerPoint, OneNote, InfoPath, Groove, and Access), Write-N-Cite, Course Compass, SPSS, SAS, Census Tract and etc. Additional services are made available in response to customer service surveys and other assessment.

Computers are located on each floor of the main library and in all branch libraries. Printing is available from all computers. Documents queued to print may be picked up from any print station in the main library or any branch library. Separate email stations are available near the Information Commons Desk. A scanner that provides scanning of photos and multiple document formats and sizes is available.

A help desk is staffed as part of the Information Commons to assist users with software applications and technology support. Helpdesk staff assists users with directional questions, laptop registration and circulation, referrals and resolution of computing and printing needs and issues.

**Staff**

All Library and related personnel meet or exceed minimal educational requirements as defined by the Association of College and Research Libraries (ACRL). Librarians hold master’s degrees from ALA accredited schools. Additionally, two faculty librarians have completed the specialists’ degree in library science and four faculty librarians have completed master’s degrees in other subject disciplines. The University employs 15 librarians. Support staff are also very well qualified, evidenced by three support staff holding a master’s degree and 17 support staff holding bachelor’s degrees.

**Facilities**

All faculty and students have full access to the facilities of FAMU’s Coleman Memorial Library and branch libraries. These facilities more than adequately support faculty and student use of information technology for instruction, learning and research. Coleman Memorial Library occupies approximately 88,964 net square feet. Almost 20,000 additional square feet are available in the branch libraries. The University Libraries have a seating capacity of 834, including group study rooms, a student study lounge and cafe, and 20 graduate/faculty study carrels. Coleman Library also includes an information literacy classroom and teleconference rooms. All library facilities enjoy dense fiber optic wiring (one outlet for every 40 square feet of floor space) to the desktop. In addition to fiber wiring, much of the main library and its immediate grounds are wireless, enabling students and faculty convenient and generous access to the wireless network using their own supported laptops, or they may borrow one of 24 network-ready laptops from the Library Systems Department for use in the library.
The Office of Instructional Technology is housed in Coleman Library. Instructional Technology contains two teleconference centers/distance learning classrooms, with a combined seating capacity of over 50 people, designed for both satellite teleconferencing and for mediated viewing. The OIT also contains an open computer laboratory and faculty development laboratory. Audiovisual resources and equipment are available for faculty to reserve and/or view.
Florida A&M University Libraries

Agriculture and Food Science Journals

The University Libraries have access to over 900 electronic journals in support of Agriculture and Food Sciences. The following is a selected list of high impact Food Science journals, followed by a list of links by subject area.

Selected Food Science Journals

- Comprehensive Reviews in Food Science and Food Safety
- Critical Reviews in Food Science and Nutrition
- Food Chemistry
- Food Microbiology
- International Journal of Food Microbiology
- Journal of the Academy of Nutrition and Dietetics
- Molecular Nutrition & Food Research
- Postharvest Biology and Technology
- Trends in Food Science & Technology

Agriculture, Food Science, and Veterinary Medicine Journals

The number in parenthesis indicates the number of e-journals held in the respective subject area.

- Agriculture - General (363)
- Animal Sciences (205)
- Plant Sciences (189)
- Veterinary Medicine (146)
Florida A&M University Libraries
Agriculture and Food Sciences Databases

**Access Science**

**AGNIC**
AGNIC provides full text access to over 60 topics in the areas of agriculture, food, and natural resources.

**Agricola**
Bibliographic database consisting of literature citations for journal articles, monographs, proceedings, theses, patents, translations, audiovisual materials, computer software, and technical reports pertaining to all aspects of agriculture.

**Agricola (Public Access)**
The National Agricultural Library's (NAL) Web Gateway to AGRICOLA (AGRICultural OnLine Access). The database includes journal articles, book chapters, short reports, and reprints, as well as, access to the NAL online catalog.

**Agriculture Network Information Center**
Provides over 5,000 serial publications, books, reports, conference proceedings, translations and limited distribution literature in aquatic sciences.

**Biological & Agricultural Index Plus**
The database includes abstracts and full text coverage for selected journals. Periodical coverage includes a wide range of scientific journals, from popular to professional, that pertain to biology and agriculture. About 45 percent of the focus is on agriculture.

**Cab Abstracts**
A bibliographic covering the significant research and development in the fields of agriculture, forestry, human health and nutrition, animal health, and the management and conservation of natural resources.

**Cab Direct**
Provides access to bibliographic and full text applied life science articles.

**IEEE Xplore**
Provides full text access to journals and technical literature in electrical engineering, computer science, and electronics, includes agricultural engineering.

**INSPEC**
Provides bibliographic information and abstracts on the world's output of published works in physics, electrical engineering and electronics, computing, and information technology, including physics in agriculture, computers in agriculture, and electricity in agriculture.

**ISI Web of Science**
Articles, abstracts, and citations from Citation Index, Social Science Citation Index, and Arts & Humanities Citation Index.

**ProQuest Agriculture Journals**
Provides full text and images from agriculture, animal and veterinary sciences, plant sciences, forestry, aquaculture and fisheries, farming and food and nutrition journals.

**ScienceDirect**
The ScienceDirect Database is the electronic full text version of approximately 650 of Elsevier's traditional research journals including the fields of Chemistry and Chemical Engineering; Earth and Planetary Sciences; Engineering and Technology; Environmental Science; and Life Sciences.

**SciFinder**
Provides access to journal articles and patent information from many scientific disciplines, including agricultural science. Access single and multi-step reactions, experimental and predicted properties, and substance information from the CAS REGISTRY.

**Wiley Online Library**
Full text access to a multidisciplinary collection of over 600 journals and books covering life, health and physical sciences, social science, and the humanities.

B. **Describe additional library resources that are needed to implement and/or sustain the program through Year 5.** Include projected costs of additional library resources in Table 3 in Appendix A. Please include the signature of the Library Director in Appendix B.

It is not likely that the Library will have to provide any additional resources above and beyond what is currently provided.

C. **Describe classroom, teaching laboratory, research laboratory, office, and other types of space that are necessary and currently available to implement the proposed program through Year 5.**

Two laboratories, a microbiology laboratory and a general purpose analytical laboratory currently serve the Food Science program but there is no formal food processing space. Plans are currently in place for the renovation of the general purpose laboratory in 2015-2016. The program will also benefit from the Food biotechnology laboratory being established at the Center for Viticulture and Small Fruit Research. The College is also accelerating plans to establish some form of
processing at either the Viticulture or Quincy facilities or even both. Once these plans come to fruition they will support the growth and development of the Food Science degree.

D. Describe additional classroom, teaching laboratory, research laboratory, office, and other space needed to implement and/or maintain the proposed program through Year 5. Include any projected Instruction and Research (I&R) costs of additional space in Table 2 in Appendix A. Do not include costs for new construction because that information should be provided in response to X (E) below.

Additional classroom room space is not likely to be needed.

E. If a new capital expenditure for instructional or research space is required, indicate where this item appears on the university's fixed capital outlay priority list. Table 2 in Appendix A includes only Instruction and Research (I&R) costs. If non-I&R costs, such as indirect costs affecting libraries and student services, are expected to increase as a result of the program, describe and estimate those expenses in narrative form below. It is expected that high enrollment programs in particular would necessitate increased costs in non-I&R activities.

NA

F. Describe specialized equipment that is currently available to implement the proposed program through Year 5. Focus primarily on instructional and research requirements.

The food science laboratories include a new 900 sq. ft. state of the art level II microbiology laboratory equipped with a laminar flow hood, and all the equipment and supplies needed to analyze for pathogenic and nonpathogenic bacteria. The 3000 sq. ft. general food laboratory is equipped for standard chemical and instrumental analysis of foods. Its equipment includes a nitrogen analyzer, fat and fiber analyzers, HPLC, texture analyzer, spectrophotometers, Hunter Lab colorflex for color measurement. It is also equipped with meat slicer, meat grinder, sausage stuffer, and vacuum tumbler that allow for experimental procedures to be carried out using meat. Facilities also include a dedicated sensory panel facility attached to an experimental kitchen. However, like all areas there is a need for constant update.

G. Describe additional specialized equipment that will be needed to implement and/or sustain the proposed program through Year 5. Include projected costs of additional equipment in Table 2 in Appendix A.

Science is continuously changing and the current College commitment to laboratory upkeep may have to be increased depending upon these changes. However, outside of the processing facilities, which are being planned for the Mahan Drive and Quincy facilities, we expect new equipment to be provided via the annual College budget.
H. Describe any additional special categories of resources needed to implement the program through Year 5 (access to proprietary research facilities, specialized services, extended travel, etc.). Include projected costs of special resources in Table 2 in Appendix A.

NA

I. Describe fellowships, scholarships, and graduate assistantships to be allocated to the proposed program through Year 5. Include the projected costs in Table 2 in Appendix A.

NA

J. Describe currently available sites for internship and practicum experiences, if appropriate to the program. Describe plans to seek additional sites in Years 1 through 5.

NA
APPENDIX A

Board of Governors New Degree Worksheets
## APPENDIX A

### TABLE 1-A (DRAFT)
**PROJECTED HEADCOUNT FROM POTENTIAL SOURCES**
(Baccalaureate Degree Program)

<table>
<thead>
<tr>
<th>Source of Students (Non-duplicated headcount in any given year)*</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>HC</td>
<td>FTE</td>
<td>HC</td>
<td>FTE</td>
<td>HC</td>
</tr>
<tr>
<td>Upper-level students who are transferring from other majors within the university**</td>
<td>8</td>
<td>8</td>
<td>7</td>
<td>7</td>
<td>6</td>
</tr>
<tr>
<td>Students who initially entered the university as FTIC students and who are progressing from the lower to the upper level***</td>
<td>30</td>
<td>25</td>
<td>39</td>
<td>33</td>
<td>48</td>
</tr>
<tr>
<td>Florida College System transfers to the upper level***</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Transfers to the upper level from other Florida colleges and universities***</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Transfers from out of state colleges and universities***</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Other (2nd Degree)***</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Totals</td>
<td>40</td>
<td>35</td>
<td>49</td>
<td>43</td>
<td>61</td>
</tr>
</tbody>
</table>

* List projected annual headcount of students enrolled in the degree program. List projected yearly cumulative ENROLLMENTS instead of admissions.

** If numbers appear in this category, they should go DOWN in later years.

*** Do not include individuals counted in any PRIOR CATEGORY in a given COLUMN.

Worksheet Table 1-A UG Enrollment
# APPENDIX A

## TABLE 2

PROJECTED COSTS AND FUNDING SOURCES

<table>
<thead>
<tr>
<th>Instruction &amp; Research Costs (non-cumulative)</th>
<th>Year 1</th>
<th>Year 5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Funding Source</td>
<td>Subtotal E&amp;G, Auxiliary, and C&amp;G</td>
</tr>
<tr>
<td></td>
<td>Reallocated Base* (E&amp;G)</td>
<td>$504,965</td>
</tr>
<tr>
<td></td>
<td>Enrollment Growth (E&amp;G)</td>
<td>497,925</td>
</tr>
<tr>
<td></td>
<td>Other New Recurring (E&amp;G)</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>New Non-Recurring (E&amp;G)</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Contracts &amp; Grants (C&amp;G)</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Auxiliary Funds</td>
<td>0</td>
</tr>
<tr>
<td><strong>Faculty Salaries and Benefits</strong></td>
<td>493,422</td>
<td>0</td>
</tr>
<tr>
<td><strong>A &amp; P Salaries and Benefits</strong></td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>USPS Salaries and Benefits</strong></td>
<td>42,900</td>
<td>0</td>
</tr>
<tr>
<td><strong>Other Personal Services</strong></td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Assistantships &amp; Fellowships</strong></td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Library</strong></td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Expenses</strong></td>
<td>10,000</td>
<td>10,000</td>
</tr>
<tr>
<td><strong>Operating Capital Outlay</strong></td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Special Categories</strong></td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total Costs</strong></td>
<td>$536,322</td>
<td>$550,825</td>
</tr>
</tbody>
</table>

*Identify reallocation sources in Table 3.

**Includes recurring E&G funded costs ("reallocated base," "enrollment growth," and "other new recurring") from Years 1-4 that continue into Year 5.

**Identify if non-recurring.

## Faculty and Staff Summary

<table>
<thead>
<tr>
<th>Position</th>
<th>Year 1</th>
<th>Year 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Faculty (person-years)</td>
<td>3.25</td>
<td>3.58</td>
</tr>
<tr>
<td>A &amp; P (FTE)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>USPS (FTE)</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

## Calculated Cost per Student FTE

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Year 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total E&amp;G Funding</td>
<td>$536,322</td>
</tr>
<tr>
<td>Annual Student FTE</td>
<td>35</td>
</tr>
<tr>
<td>E&amp;G Cost per FTE</td>
<td>$15,523</td>
</tr>
</tbody>
</table>

Worksheet Table 2 Budget
APPENDIX A

TABLE 3 (DRAFT)
ANTICIPATED REALLOCATION OF EDUCATION & GENERAL FUNDS*

<table>
<thead>
<tr>
<th>Program and/or E&amp;G account from which current funds will be reallocated during Year 1</th>
<th>Base before reallocation</th>
<th>Amount to be reallocated</th>
<th>Base after reallocation</th>
</tr>
</thead>
<tbody>
<tr>
<td>College of Agriculture and Food Sciences Dean's Office</td>
<td></td>
<td>493,422</td>
<td></td>
</tr>
<tr>
<td>Totals</td>
<td></td>
<td>$493,422</td>
<td></td>
</tr>
</tbody>
</table>

* If not reallocating funds, please submit a zeroed Table 3

Worksheet Table 3 Reallocation
# APPENDIX A

## TABLE 4 (DRAFT)

### ANTICIPATED FACULTY PARTICIPATION

<table>
<thead>
<tr>
<th>Faculty Code</th>
<th>Faculty Name or &quot;New Hire&quot;</th>
<th>Academic Discipline or Specialty</th>
<th>Rank</th>
<th>Contract Status</th>
<th>Initial Date for Participation in Program</th>
<th>Months Contract Year 1</th>
<th>FTE Year 1</th>
<th>% Effort for Prg. Year 1</th>
<th>FY Year 1</th>
<th>Months Contract Year 5</th>
<th>FTE Year 5</th>
<th>% Effort for Prg. Year 5</th>
<th>FY Year 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Neil James, Ph.D.</td>
<td>Food Science</td>
<td>Professor</td>
<td>Tenured</td>
<td>Fall 2016</td>
<td>9</td>
<td>0.75</td>
<td>1.00</td>
<td>0.75</td>
<td>9</td>
<td>0.75</td>
<td>1.00</td>
<td>0.75</td>
</tr>
<tr>
<td>A</td>
<td>Mitwe Musingo, Ph.D.</td>
<td>Food Science</td>
<td>Professor</td>
<td>Tenured</td>
<td>Fall 2016</td>
<td>9</td>
<td>0.75</td>
<td>1.00</td>
<td>0.75</td>
<td>9</td>
<td>0.75</td>
<td>1.00</td>
<td>0.75</td>
</tr>
<tr>
<td>B</td>
<td>Jenelle Robinson, Ph.D</td>
<td>Nutrition</td>
<td>Asst. Prof</td>
<td>Tenure Earning</td>
<td>Fall 2016</td>
<td>9</td>
<td>0.75</td>
<td>1.00</td>
<td>0.75</td>
<td>9</td>
<td>0.75</td>
<td>1.00</td>
<td>0.75</td>
</tr>
<tr>
<td>B</td>
<td>Satyanarayan Dev, Ph.D</td>
<td>Food Engineering</td>
<td>Asst. Prof</td>
<td>Tenure Earning</td>
<td>Fall 2016</td>
<td>9</td>
<td>0.75</td>
<td>0.10</td>
<td>0.08</td>
<td>9</td>
<td>0.75</td>
<td>0.10</td>
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<tr>
<td>B</td>
<td>Anthony Ananga</td>
<td>Food Science</td>
<td>Asst. Prof</td>
<td>Tenure Earning</td>
<td>Fall 2016</td>
<td>9</td>
<td>0.75</td>
<td>1.00</td>
<td>0.75</td>
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<tr>
<td>D</td>
<td>Keawin Sarjeant, Ph.D</td>
<td>Meats and Food Safety</td>
<td>Asst. Prof</td>
<td>Non Tenure</td>
<td>Fall 2016</td>
<td>12</td>
<td>1.00</td>
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<td>12</td>
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**Total Person-Years (PY)**

<table>
<thead>
<tr>
<th>Faculty Code</th>
<th>Source of Funding</th>
<th>PY Workload by Budget Classification</th>
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<tbody>
<tr>
<td>A</td>
<td>Existing faculty on a regular line</td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>New faculty to be hired on a vacant line</td>
<td></td>
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<tr>
<td>C</td>
<td>New faculty to be hired on a new line</td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>Existing faculty hired on contracts/grants</td>
<td></td>
</tr>
<tr>
<td>E</td>
<td>New faculty to be hired on contracts/grants</td>
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**Overall Totals for:**

<table>
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<tr>
<th>Year 1</th>
<th>Year 5</th>
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</thead>
<tbody>
<tr>
<td>3.25</td>
<td>3.58</td>
</tr>
</tbody>
</table>
APPENDIX B

Please include the signature of the Equal Opportunity Officer and the Library Director.

Signature of Equal Opportunity Officer  
4/25/2016
Date

Signature of Library Director  
4/25/2016
Date

This appendix was created to facilitate the collection of signatures in support of the proposal. Signatures in this section illustrate that the Equal Opportunity Officer has reviewed section ILE of the proposal and the Library Director has reviewed sections X.A and X.B.
Appendix C
Curriculum vitae (CV) for each existing faculty
Neil A. James
Florida A&M University, Food Science Program
305 South Perry-Paige, Tallahassee, Florida 32307
Email: Neil. James @famu.edu. Phone: (850) 561-2310

Education
Ph.D. (Food Science), University of Leeds, England, 1984
B.Sc. (Chemistry), University of Guyana, Guyana, 1979.

Employment Experience
Food Science Program Leader, 1998 – present
Professor, Florida A&M University, 2006 to present
Associate Professor, Florida A&M University, 1997 - 2006
Assistant Professor, Florida A&M University, 1992 - 1997
Research Associate, Florida A&M University and Visiting Food Chemist,
USDA Meat Science Research Laboratory, Beltsville, MD, 1989 – 1992

University Courses Taught
FOS 2002 – Food and Man
FOS 3042 - Introduction to Food Science
FOS 3042L – Introduction to Food Science Laboratory
FOS 4311 – Food Chemistry
FOS 4321 – Food Analysis with laboratory
FOS 4942 – Food Safety Practicum
AGG 4420 Global Seminar on Human Sustainability
ANS 3614 – Meat Science
HUN 2401 – Human Nutrition;

Master of Science Students Supervised (9)
Telesford, Jacqueline, 2012, Evaluation of selected physical properties of a soy based 'ice cream' product
Gardner, E. Evaluating the Antibacterial Properties of Concentrated Muscadine Juice and Extracts of Muscadine Seed and Skin
Lihong Wang, 2003, The effect of Muscadine juice and dried pomace on lipid oxidation and color of beef and chevon patties during refrigerated storage,
Hao Wang, 1998, HPLC determination of niacinamide, riboflavin, and vitamin B6 in raw and cooked chevon from young goats.
Bing Lin, 1998, The effects of cuts and cooking methods on the total fat and cholesterol content in chevon from young goats.
Dereo Maycock, 1996, Optimizing the textural and physical properties of chevon patties.

Fangqiang Fan, 1996, The effect of age, cut and cooking method on the mineral concentration in chevon,

Dale King, 1994, Nutrient and textural analysis of chevon chops cooked using different levels of microwave power

**Publications (refereed)**


Wang, L. and James, N. A. 2003. The Influence of Muscadine Juice on the Rate of Lipid Oxidation and pH changes in Beef Patties. Proceedings of the Association of Research Directors held in Atlanta, Georgia.


James, N. A. and Berry, B.W. 1991 The present and future status of low-fat ground beef production in the United States ground beef production in the United States, Journal of Animal Science, 69, 178A


James, N. A. and Ryley, J 1986 The rapid determination of chemically reactive lysine in the presence of carbohydrates by a modified trinitrobenze acid procedure. Journal of the Science of Food and Agriculture. Vol. 37, 151-156

**Other Selected Publications and Presentations**

Sriharan, S., Stuohin, D, James, N, Francisco, S., 2012, Student Preparation for Global Learning through Case Studies and Videoconferencing, 19th Annual HBCU Faculty Development Network Conference, Orlando, Florida
James, N., 2006. Food safety and nutrition challenges to the global meat consumer. Invited presentation at the 2nd International Food and Nutrition Conference, held at Tuskegee University, October 8-10.


James, N. 2005 Optimizing nutritional values in popular methods. Invited presentation at the annual, conference of the American Society for Horticultural Science held in Las Vegas.

Wang, L. and James, N.A. 2003 The influence of Muscadine Juice on the rate of lipid oxidation and pH changes in, patties. Presented to the Association of Research Directors Meeting held in Atlanta, GA.


James, N. Browdy, A., Lamikanra, V. and Musingo, M 1995 Sensory qualities of meal-ready-to-eat burgers Presentation to the 92nd annual meeting of the Southern Association of Agricultural Scientists Held in New Orleans, Louisiana.

Grants Received
2013 Creating A Public Private Consortium for Enhanced Preparation of Students for Careers in the Food Industry. P.I. USDA Capacity building Grant, ($147,000)

2006 To establish a model capstone internship in food safety”, Co- P.I. USDA Capacity building Grant, ($199,118)

2003 The Utilization of Muscadine products to enhance the sensory physiochemical and safety qualities of meats. P.I. The USDA Agricultural Research Service and FAMU Science Center. ($191,000)

1997 Sensory evaluation of MRE products. P.I. Sub contract from University of Connecticut ($45,000)

1992 Compositional and Quality Characteristics of Chevon, USDA Capacity Building Grant, co-P.I. (276,808)
**Professional Affiliations**
Institute of Food Technologists - Professional Member
Florida Section of Institute of Food Technologists – Member
American Association of Meat Scientists – Member
Gamma Sigma Delta - Member

**University Service**
Chair, University Curriculum Committee – 2012 – present
Chair, University Sabbatical and Professional Development Leave Committee, 2012/13
Faculty Senate Library Committee, Member since 2002
University Curriculum Committee - 2002 – present
University Honors Program Advisory Committee, Member 2004 - 2009
Member, Faculty Senate - 1995 – 97, 1999 - 2001
Faculty Advisor, FAMU Chapter of MANRRS (Minorities in Agriculture, Natural Resources and Related Sciences), 1993 – 1999
Faculty Advisor to Food Science Club, 2000 – present

**Public Service**
Chair, 2010 – 2012, Florida Food Safety and Food Security Advisory Council and member since 2002. Section 500.033 of the Florida Statues authorizes this council. The purpose of the council is to serve as a forum for presenting, investigating, and evaluating issues of current importance to the assurance of a safe and secure food supply. The Florida Commissioner of Agriculture and Consumer Services appoint members.

Math coach of the National Achievers Society (a society dedicated to high achieving African American K-12 students)
Member, National Committee on Science, Technology & Faith of the Episcopal Church, 2003 – 2005
Member, National Achievers Society Parents Alliance 2000 to 2008 & Treasurer 2005/06
MITWE N. MUSINGO, Ph. D.
Professor, Food Science Program
7502 Refuge Rd
Tallahassee, Florida 32312
Email: mitwe.musingo@famu.edu
Work Phone Number: (850) 561-2309

EDUCATION:
Ph.D. (1999), Food Science and Human Nutrition Department, University of Florida
M.S. in Agricultural Education (1988), Florida A & M University
B.S. in Biology (1984), Florida A & M University
License en Biologie (1977), Faculte des Sciences, Universite Nationale du Zaire

CERTIFICATION: Hazard Analysis Critical Control Point (HACCP) certified since August 1999

EXPERIENCE:
Professor (August 2010 to Present)

Associate Professor (August 2006 to July 2010)
Food Science Program, Florida A & M University, Tallahassee, Florida
Major duties consist of teaching several Food Science courses and Academic advisement

Assistant Professor (August 1999-2006)

Graduate Program Coordinator (July 2002 to September 2004)
Food Science Program, Florida A & M University, Tallahassee, Florida

Assistant Professor (August 1995-August 1999)
On leave of absence from FAMU to complete Ph.D. Program at the University of Florida in Gainesville.

Assistant Professor (October 1994-August 1995), Florida A & M University.
Designed materials for the recruitment of new students in food science. Helped with the implementation of the Mentoring Minority Students for the Food and Nutritional Sciences.

Research Associate (November 1992-October 1994), Florida A & M University
Designed the new curriculum for the new Food Science Unit and wrote the description of new courses submitted for Board of Regents’ approval.

Research Assistant (December 91-November 1992)
Division of Agricultural Sciences, Duties included the development of new meal ready to eat (MRE) ethnic foods for use as military operational rations.

Research Assistant (September 1984 - August 1989)
Publications:


EDUCATION
University of Florida, Gainesville, FL; College of Agricultural and Life Sciences, Meat Science/Food Microbiology; PhD. May 2006. Dissertation Title: “Impact of Three Different Feeding Regimens on Performance Microbiology, Sensory, and Objective Characteristics of Florida Brangus Beef Cattle.”

University of Florida, Gainesville, FL; College of Agricultural and Life Sciences, Meat Science/Food Microbiology; M.S., 2003. Master’s Thesis: “The Effect of Irradiation on The Growth of Salmonella enterica serovar Typhimurium and Psychrotrophic Bacteria in Raw Chicken Breasts Stored at 4°C ± 1°C for 14 Days”

Florida A&M University, Tallahassee, FL; B.S., Biology and Chemistry; June 1999.

PROFESSIONAL EXPERIENCE
2009 - Present – Assistant Professor
Florida A&M University, College of Agriculture and Food Sciences (CAFS), Division of Agricultural Sciences Food Science and Animal Science Program and Cooperative Extension, Tallahassee, Fl.
Current research focus is on poultry products and the effects of different natural spices on shelf-life and pathogenic microorganisms.

2008-2009 – Biological Scientist I
Florida Department of Agriculture, Division of Food Safety, Tallahassee, FL.
Duties: Perform microbiological analyses on food products and water using both automated, molecular and cultural techniques; Sample preparation for microbiological analyses; perform monitoring and calibration of laboratory equipment; detailed record keeping, editing and creation of official reports.

2006-2009 – Multimedia Engineer and Office Assistant
Tabernacle Missionary Baptist Church, Tallahassee, FL.
Duties: Designing and executing weekly multimedia presentations for worship.
Responsible for operating NSI 24/48 Lighting Memory Console for stage lighting and Yamaha 01V96 Digital Audio Mixing board for live and recorded video presentation. Provide assistance in office processing activities and data entry.

1999-2006 - **Research and Teaching Assistant**, University of Florida, Department of Animal Sciences, Gainesville, FL. 
**Duties:** Lecturing and conducting laboratory exercises in undergraduate meat and poultry processing courses. Research responsibilities included conducting work on projects involving meat and poultry processing with major emphasis on (1) food safety and sanitation of meat and poultry products, (2) functional properties of food ingredients used in the manufacture of meat and poultry products, and (3) product development. Perform microbiological analyses on meat and poultry products. Perform trained and consumer sensory panels on different meat and poultry products. Prepared and processed several different types of meat and poultry products using meat ingredients as well as non-meat ingredients.

**Duties:** Coordinating and supervising the activities of the office staff in the areas of personnel and payroll. Responsible for the daily data entry of office and field personnel information. Provided assistance in office processing activities to the assistant managers within the office.

**Duties:** Assisted in research of Feline Immunodeficiency Virus and Cytokine production.

**ACADEMIC ADVISEMENT/MENTORING EXPERIENCE**

**Graduate** – Train and mentor graduate students in the areas of meat science, food safety, and product development. Also helped new students adjust to life as a graduate student.

**Undergraduate** – Academic advisement and mentoring for undergraduate students in Food Science, Animal Science and Veterinary Technology. Mentor undergraduates who conduct experiments in product development, general microbiology, food microbiology, meat and poultry processing, and food irradiation. Student mentor with the Research Experience for Undergraduates (REU) at the University of Florida beginning in 2003.

**Middle School:** Mentored and supervised one middle school student who conducted a *Salmonella* isolation project in the Food Science laboratory.

**TEACHING EXPERIENCE**
Florida A&M University, Tallahassee, FL; College of Engineering Sciences, Technology, and Agriculture, Division of Agriculture Sciences and Cooperative Extension
University of Florida, Gainesville, FL; College of Agricultural and Life Sciences, Meat Science/Food Microbiology.

**Undergraduate:**
**ANS 4931 – Animal Science Seminar** – a course on preparation and presentation of oral and written reports on past and present subjects in Animal Science or related areas.

**ANS 3614 - Meats** - Basic principles for the use of muscle as food; process technology; meat/poultry inspection regulations and labeling; quality control procedures and marketing aspects.

**FOS 4244C - Food Microbiology Lecture/Lab** – An introduction to microbiology as it relates to food. Focus includes common foodborne pathogens, as well as other bacteria, viruses, fungi, and parasites. This course also focuses on regulatory aspects and prevention of foodborne disease and microbial spoilage and applications for the basic and applied principles of Food Microbiology.

**FOS 4942 – Food Safety Practicum** - a capstone class in food safety designed to expose students to the actions of the government and the food industry in dealing with current and emerging issues in food safety. The students obtain information primarily through hands on experiences, laboratory exercises and lectures during visits to government agencies involved in food safety and food companies with active food programs.

**VME 4117 Animal Sanitation and Disease** - Various factors involved in animal sanitation and control of diseases. The diseases outlined in this course have significance in different areas because of their potential for affecting the health of animals and their related human health and environmental effects. Exposure of animals and humans to disease causing organisms and other health hazards can result in contamination of animal derived foods and products. Human exposure from consumption of contaminated plants and animal derived foods and products can be detrimental to human health and the environment.

**ANS 4635L - Meat Processing Lab** – Application of basic principles for the use of muscle as food; process technology; meat/poultry inspection regulations and labeling; quality control procedures and marketing aspects.

**ANS 4635 - Meat Processing Lecture** (teaching assistant). Basic principles for the use of muscle as food; process technology; meat/poultry inspection regulations and labeling; quality control procedures and marketing aspects.

**Graduate:**
**FOS 5226 Advanced Food Microbiology** – provides an advanced analysis of microbiology as it relates to food. The relationship between food and the microorganisms that inhabit that food is examined in detail. This includes, the science
and processing methods that define and control these relationships.

**ANS 6288- Experimental Techniques and Analytical Procedures in Meat Research**
(teaching assistant). Experimental design, analytical procedures; techniques; carcass measurements and analyses as related to livestock production and meats studies.

**PERTINENT PUBLICATIONS**


**CONFERENCE PRESENTATIONS**


**PROFESSIONAL DEVELOPMENT ACTIVITIES**

2014 - USDA NIFA Peer Reviewer
2012 – Present - Peer Reviewer Letters in Applied Microbiology
2010 – Present - Peer Reviewer for Journal of Applied Microbiology
2010 – Present - Peer Reviewer for Journal of Poultry Science
2011 - USDA NIFA Ad Hoc Peer Reviewer
2009 - Florida Small Farms Outreach Conference
2009 - Florida Small Farms and Alternative Enterprises Conference
2006 - Compact for Faculty Diversity- 13th Annual Institute on Teaching and Mentoring
2005 - Compact for Faculty Diversity- 12th Annual Institute on Teaching and Mentoring
Curriculum Vitae
Dr. Satyanarayan R.S. Dev

Address
Primary Affiliation Address
Assistant Professor,
Department of Food Science and Nutrition,
College of Applied Sciences,
A'Sharqiyyah University,
P.O. Box 42, Postal Code 400,
Ibra, Sultanate of Oman

E-Mail: satyanarayan.dev@gmail.com
Phone: +968-255 60 700 Ext 257
Fax: +968-255 60 702
Mobile: +968-989 40 422

Secondary Affiliation Address
Adjunct Professor,
Department of Bioresource Engineering,
McGill University, 21111, Lakeshore Road,
Ste Anne de Bellevue, QC, H9X 3V9, Canada.

Age: 32  Nationality: Canadian
Languages: English, French, Russian, Hindi, Tamil

Areas of Discipline and Expertise

Academic Background and Training

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<th>Degree/Training</th>
<th>Organization</th>
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<th>Date Completed</th>
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<td>NSERC* Post-Doctoral</td>
<td>Ecole Polytechnique de Montreal, Canada</td>
<td>Optimization and scale up of electrotechnology for in-shell egg pasteurization</td>
<td>09/2012</td>
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<tr>
<td>Doctoral Fellow</td>
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<tr>
<td>FQRNT* Post-Doctoral</td>
<td>Ecole Polytechnique de Montreal, Canada</td>
<td>Optimization and scale up of electrotechnology for in-shell egg pasteurization</td>
<td>12/2011</td>
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<tr>
<td>Doctoral Fellow</td>
<td>Pennsylvania State University, USA</td>
<td>Develop a novel CIP technique using Electrolysed Oxidizing water for milking systems</td>
<td>08/2011</td>
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<tr>
<td>Doctor of Philosophy</td>
<td>McGill University, Canada</td>
<td>Microwave Pasteurization of Shell Eggs – A Comprehensive Study</td>
<td>08/2010</td>
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<td>(Bioresource Engineering)</td>
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<tr>
<td>Master of Science</td>
<td>McGill University, Canada</td>
<td>Microwave Pasteurization of Shell Eggs – A Prelude</td>
<td>05/2007</td>
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<tr>
<td>(Bioresource Engineering)</td>
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<tr>
<td>Bachelor of Technology</td>
<td>Tamil Nadu Agricultural University, India</td>
<td>HACCP Analysis of Different Types of Food Industries</td>
<td>05/2004</td>
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<tr>
<td>(Food Process Engineering)</td>
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Fonds Québécois de la Recherche sur la Nature et les Technologies, Government of Québec, Canada.
Distinctions
First Rank Holder in 2010-2011 Le Fonds québécois de la recherche sur la nature et les technologies – Postdoctoral Scholarships Competition
First Rank Holder in 2007-2008 Le Fonds québécois de la recherche sur la nature et les technologies - Doctoral Scholarships Competition
Best Poster Award, ICEF 10 - 10th International Congress of Engineering and food, April 20-24, 2008, Vina del Mar, Chile
Best Poster Award, IFET 2012 - International Congress of Food Engineering and Technology, March 26-28, 2012; Bangkok, Thailand
Outstanding Oral Presentation, Northeast Agriculture and Biological Engineers Conference, United States, Jul 29 – Aug 1, 2007, Wooster, Ohio, USA.
Outstanding Oral Presentation, Northeast Agriculture and Biological Engineers Conference, United States, Jul 30 – Aug 2, 2006, Montreal, Quebec, Canada.

Scholarships and Research Awards Won
Postdoctoral Fellowship, Natural Science and Engineering Research Council, Canada, Effective: 01/2012, Ending: 01/2014, $80,000
Postdoctoral Research Scholarship, Fonds Québécois de la Recherche sur la Nature et les Technologies, Canada, Effective: 09/2011, Ending: 08/2013, $60,000
Industrial Research & Development Fellowship, Natural Science and Engineering Research Council, Canada, Effective: 05/2011, Ending: 05/2013, $80,000
Visiting Fellowship in Government Laboratories, Natural Science and Engineering Research Council, Canada, Effective: 05/2011, Ending: 05/2013, $95,000
Doctoral Research scholarships, Le Fonds Québécois de la Recherche sur la Nature et les Technologies, Canada, Effective: 05/2008, Ending: 05/2010, $40,000
Graduate Research Award, McGill University, Canada, Effective: 01/2008, Ending: 09/2010, $41,838
Recruitment Excellence Fellowship, McGill University, Canada, Effective: 09/2007, Ending: 12/2007, $5,000

Research Grants
Principal Investigator - "Microwave Assisted Solar Vapour Absorption Systems for Sustainable Refrigeration and Air Conditioning in Oman" - Effective: 06/2014, Ending: 06/2017, $275,000

Certifications
1. Diploma in Information Systems Management from Microsoft Corporation
2. Graduate Teaching Workshop certification from McGill University
3. HACCP Certification for Processors and Manufacturers
4. Basic and Advanced Modeling Features Certification from COMSOL Multiphysics Inc
5. MATLAB certification from MathWorks Inc.
<table>
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<th>Position</th>
<th>Organization</th>
<th>Job Description</th>
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<tr>
<td>Assistant Professor</td>
<td>A’Sharqiyah University, Oman</td>
<td>Instruct, teach and grade Advanced Food Science courses for undergraduate students, establish laboratories for ‘Food Engineering’, 'Food Packaging' and 'Food Physics' as well as develop a 'Food Entrepreneurship' program</td>
<td>09/2012 - Present</td>
</tr>
<tr>
<td>Adjunct Professor</td>
<td>McGill University, Canada</td>
<td>Collaborate in research activities, Co-Supervise graduate students, Give guest lectures and assist/participate in departmental academic activities as needed</td>
<td>11/2012 - Present</td>
</tr>
<tr>
<td>Acting Dean</td>
<td>A’Sharqiyah University, Oman</td>
<td>In-charge of the deanship of the college of applied sciences, administer and coordinate academic activities, establish departments and hierarchical structure for college committees.</td>
<td>02/2013 – 05/2013</td>
</tr>
<tr>
<td>NSERC Post-Doctoral Fellow</td>
<td>Ecole Polytechnique de Montreal, Canada</td>
<td>Optimization and scale up of electrotechnology for in-shell egg pasteurization</td>
<td>09/2011 – 09/2012</td>
</tr>
<tr>
<td>FQRNT Post-Doctoral Fellow</td>
<td>Ecole Polytechnique de Montreal, Canada</td>
<td>Optimization and scale up of electrotechnology for in-shell egg pasteurization</td>
<td>09/2011 – 12/2011</td>
</tr>
<tr>
<td>Sessional Lecturer</td>
<td>McGill University, Canada</td>
<td>Instruct, teach and grade ‘Geomatics’ for undergraduate engineering students</td>
<td>09/2011 – 12/2011</td>
</tr>
<tr>
<td>Post-Doctoral Fellow</td>
<td>Pennsylvania State University, USA</td>
<td>Develop a novel CIP technique using electrolysed oxidizing water for milking systems</td>
<td>12/2010 – 08/2011</td>
</tr>
<tr>
<td>Sessional Lecturer</td>
<td>McGill University, Canada</td>
<td>Instruct, teach and grade ‘Fluid Mechanics’ for undergraduate engineering students</td>
<td>09/2010 – 12/2010</td>
</tr>
<tr>
<td>Database Analyst</td>
<td>McGill University, Canada</td>
<td>Develop a database program for immuno-nutritional studies</td>
<td>04/2005 –12/2010</td>
</tr>
<tr>
<td>Graduate Student Assistant</td>
<td>McGill University, Canada</td>
<td>Design, develop and build a laboratory scale microwave pasteurizer for in-shell eggs</td>
<td>01/2008 – 09/2010</td>
</tr>
<tr>
<td>Graduate Teaching Assistant</td>
<td>McGill University, Canada</td>
<td>Grade assignments and conduct lab sessions for ‘Postharvest Drying’ – graduate level course</td>
<td>01/2010 – 05/2010</td>
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</tbody>
</table>
Graduate Teaching Assistant  
**McGill University, Canada**  
Teach MATLAB applications and grade assignments for 4 different mathematics courses  
08/2005 – 12/2008

Research Assistant  
**McGill University, Canada**  
Preparing diet cards and packing measured quantities of food for clinical trials  
04/2005 – 12/2005

Visiting Lecturer  
**Central Institutes of Technology, India**  
Instruct, teach, grade ‘computer science’ for students in 3-year engineering diploma program  
05/2004 – 08/2004

Other Work Experience:  
I have also worked as a systems administrator, database analyst, help desk consultant and library assistant at McGill University for nearly 5 years. Moreover during my undergraduate studies, I had worked as a part time chief technical assistant at Gayatri Associates, Coimbatore, India, wherein I had assembled and serviced computers for 4 years.

Leadership Activities:  
**Participation in Committees and Professional Societies**

1. Chair, College of Applied Sciences (CAS) library committee, April 2013 – till date
2. Member and representative for CAS in ASU’s University Library Committee, September 2013 – till date
3. Member and representative for CAS in A’ Sharqiyah University’s (ASU) University Council, September 2012 – till date
4. Member and representative for CAS in ASU’s University Research Council, September 2012 – March 2013
5. Member, ASU’s University committee for textbooks and instructional materials, October 2012 – March 2013
6. Member and representative for Department of Food Science and Nutrition for the CAS college council, September 2012 – till date
7. Member of CAS Research Committee, January 2013 – till date
8. Member of the Canadian Society of Bio-Engineering (CSBE), Since June 2006 – till date.
9. Member of the American Society of Agricultural and Biological Engineers (ASABE), June 2006 – till date.
10. Member of ASABE Standards Committee on Physical Properties of Agricultural and Biological Products, since June 2007 – till date.
11. Executive Member, Postdoctoral Society of Penn State University, Since March 2011-September 2011.
13. Elected Member, AGSEM Constitutional Committee 2010-2011.
16. Life Member, Foundation for the Study of Cycles (FSC), Since June 2006

Participation as External Reviewer for Peer Reviewed Journals and Conferences
1. Associate Editor – Frontiers in Nutrition
2. Member of Editorial Board – Journal of Food Research and Technology
3. Journal of Food Engineering - 2 articles
4. Progress in Electromagnetics Research - 4 articles
5. International Journal of Numerical Modelling – 1 article
6. Journal of Food Protection – 1 article
7. Journal of Wood Chemistry and Technology – 1 article
9. International Journal of Food Properties – 1 article
10. Food Control – 1 article

Participation in Teaching and Training Activities
1. Instructor for the course “Food Sanitation" in the department of Food Science and Nutrition, College of Applied Sciences, A’Sharqiyah University for a class of 74 students since Fall 2013.
2. Instructor for the courses “Biology” and “Introduction to Food Science” in the department of Food Science and Nutrition, College of Applied Sciences, A’Sharqiyah University for a class of 90 students each during both Fall 2012 and Spring 2013 terms.
3. Sessional Lecturer for the courses "Fluid Mechanics" and “Geomatics” in Department of Bioresource Engineering at McGill University, for a class of 40 students during the terms of Fall 2010 and Fall 2011 respectively.
4. Teaching Assistant for the undergraduate mathematics course "Engineering mathematics", "Intermediate calculus", "Differential equations", "Microcomputer Applications" from 2005 to 2008 for class sizes in the range of 35 - 96 students every year at McGill University.
5. Teaching Assistant for the graduate level course "Postharvest Drying" for the term Winter 2010 for a class of 36 students at McGill University.

Participation in Scientific Outreach and/or Knowledge Translation Activities
1. Judging:
   a) Undergraduate paper competition, Graduate oral presentation and Graduate poster competition at the NABEC conference, July 2011 and June 2013;
   b) Post-doctoral research exhibition at Pennsylvania State University. April 2011;
   c) Graduate Student Poster competition organised by the Gamma Sigma Delta Association at the Pennsylvania State University. March 2011
   d) McGill undergraduate representation for Quebec Inter-university engineering competition” 2009.
2. Session Moderator: “Section VI-P-02: Food Properties (I)" - International Commission of Agricultural and Biosystems Engineering (CIGR), XVIIth World Congress in Québec City, Canada, June 2010 and Sessions III and V at the NABEC conference, June 2013.
3. **Conferences Organization and Volunteering**
   a. **Webmaster** for NABEC (a division of ASABE) from 2011 till date
   b. **Vice Chair** (Programs) for NABEC 2012-2013

4. **Invited Guest Lectures**
   c. For the courses "Elements of food engineering” and “Advanced food engineering” at the Department of Bioresource Engineering, McGill University, October 2008.

5. **Active volunteering** in Canadian International Development Agency funded programs at McGill University to facilitate visits and scholarly activities of international scientists and visitors from January 2005 to December 2007.

I hereby declare that the above details are correct to the best of my knowledge and belief.

(Satyanarayan R.S. Dev)
LIST OF PUBLICATIONS

Peer Reviewed Journal Publications


Peer Reviewed Conference Articles (Indexed by ISI and Thomson Reuters)


Submitted for Publication


Non-Peer Reviewed Publications


**Other Conference Presentations**


In-Place (CIP) Technique for Pipelines Using Farm Milking System as a model. 
Presented at the 2012 NABEC Conference, Orillia, ON, Canada, July 16-18, 2012.
NABEC Conference, Orillia, ON, Canada, July 16-18, 2012.
Oxidizing Water for Cleaning-In-Place of Milking Systems on Dairy Farms – 
Performance Evaluation and Assessment. Presented at the 2012 NABEC Conference, 
Orillia, ON, Canada, July 16-18, 2012.
Pasteurization of Shell Eggs. Statistics and Control Conference, McMaster University, 
Hamilton, ON, Canada, May 24-25, 2012.
Thermal Applications. Presented at the International Conference on Materials for 
Function of Dielectric Properties. Presented at the NABEC Conference, Geneva, NY, 
Yield and Chemical Quality of Chenna (Milk Protein Coagulate) made from 
Biochemically modified Buffalo milk. Presented at the NABEC Conference, Geneva, NY, 
of a stochastic statistical model based decision support system for postharvest storage 
of tomatoes. Presented at the NABEC Conference, Halifax, NS, Canada, July 26-29, 
2009


**Book Chapters**


Published Books


Reports of Invention:


Theses

1. **S.R.S. Dev** (2007) Microwave Pasteurization of Shell Eggs – A Prelude. Dissertation submitted for the degree of Master of Science, Department of Bioresource Engineering, McGill University, Canada
2. **S.R.S. Dev** (2010) Microwave Pasteurization of Shell Eggs – A Comprehensive Study. Dissertation submitted for the degree of Doctor of Philosophy, Department of Bioresource Engineering, McGill University, Canada
Appendix D
Support Letter from the University of Florida

July 3, 2012
Neil James, Ph.D.
Professor and Food Science Program Leader
College of Agriculture and Food Sciences
Florida A&M University
305 South Perry-Paige
Tallahassee, FL 32307

Dear Dr. James,
What a pleasure speaking with you about the development of a BS degree in Food Science at Florida A&M University. Our undergraduate Food Science major at the University of Florida enrolls about 80 students and our graduate program about 20 MS students and 20 PhD students. There will always be great careers in the food industry, so your program will be a welcome addition to training new food scientists. I hope we can also collaborate through the National and the Florida division of the Institute of Food Technologists. They have many programs that we participate in such as College Bowl and the regularly schedule monthly meetings.

Please let us know if we can assist any further.
Sincerely,

Susan S. Percival, PhD
Professor and Chair
P.O. Box 110370
Food Science & Human Nutrition
University of Florida
Gainesville, FL 32611
352-392-1991 x 217
Fax 352-392-9467
FAMU Advisory Reviews for Academic Program Proposals

The Dean of the College of Agriculture and Food Sciences has reviewed the proposal for the B.S. Food Science and recommends it for consideration.

[Signature]
Robert Taylor
Dean or Chair/Director of the academic unit
4/25/2016
Date

The College Curriculum Committee of the College/School in which the program resides has reviewed the proposal and affirms that it is consistent with the policies of that Committee.

[Signature]
Net Jones
Chair, College Curriculum Committee
4/26/2016
Date

The University Program Authorization Review Committee (UPARC) has reviewed the proposal and affirms that it is consistent with the policies of that Committee.

[Signature]
Net Jones
Chair, UPARC
4/25/2016
Date

The Curriculum Committee of the Faculty Senate has reviewed the proposal and affirms that it is consistent with the policies of that Committee.

[Signature]
Net Jones
Chair, Curriculum Committee of Faculty Senate
4/26/2016
Date

The Faculty Senate has reviewed the proposal and affirms that it is consistent with the policies of the full body and recommends approval.

[Signature]
Betty Grable
President, Faculty Senate
4/26/2016
Date

Graduate Programs Only:
The Chair of the Graduate Council has reviewed the proposal and affirms that it is consistent with the policies of that Council.

[Signature]
Chair, Graduate Council

Signature of Provost and Vice President for Academic Affairs

4/26-16
Date