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Educational Policies Committee Program Proposal, College of Agriculture and Applied Sciences, April 27, 2018 – Bachelor of Science in Food Science

Utah State University

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**Utah System of Higher Education
New Academic Program Proposal
Cover/Signature Page - Full Template**

Institution Submitting Request: Utah State University

Proposed Program Title: Bachelor of Science in Food Science

Sponsoring School, College, or Division: College of Agriculture and Applied Sciences

Sponsoring Academic Department(s) or Unit(s): Nutrition, Dietetics and Food Sciences

Classification of Instructional Program Code¹ : 01.1001

Min/Max Credit Hours Required of Full Program: 120 / 120

Proposed Beginning Term²: Fall 2018

Institutional Board of Trustees' Approval Date: June 22, 2018

Program Type (check all that apply):

<input type="checkbox"/>	(AAS) Associate of Applied Science Degree
<input type="checkbox"/>	(AA) Associate of Arts Degree
<input type="checkbox"/>	(AS) Associate of Science Degree
<input type="checkbox"/>	Specialized Associate Degree (specify award type ³ :)
<input type="checkbox"/>	Other (specify award type ³ :)
<input type="checkbox"/>	(BA) Bachelor of Arts Degree
<input checked="" type="checkbox"/>	(BS) Bachelor of Science Degree
<input type="checkbox"/>	Specialized Bachelor Degree (specify award type ³ :)
<input type="checkbox"/>	Other (specify award type ³ :)
<input type="checkbox"/>	(MA) Master of Arts Degree
<input type="checkbox"/>	(MS) Master of Science Degree
<input type="checkbox"/>	Specialized Master Degree (specify award type ³ :)
<input type="checkbox"/>	Other (specify award type ³ :)
<input type="checkbox"/>	Doctoral Degree (specify award type ³ :)
<input type="checkbox"/>	K-12 School Personnel Program
<input type="checkbox"/>	Out of Service Area Delivery Program <input type="checkbox"/> Attached MOU
<input type="checkbox"/>	Out of Mission Program
<input type="checkbox"/>	NEW Professional School

¹ For CIP code classifications, please see <http://nces.ed.gov/ipeds/cipcode/Default.aspx?y=55>.

² "Proposed Beginning Term" refers to first term after Regent approval that students may declare this program.

³ Please indicate award such as APE, BFA, MBA, MEd, EdD, JD

Chief Academic Officer (or Designee) Signature:

I, the Chief Academic Officer or Designee, certify that all required institutional approvals have been obtained prior to submitting this request to the Office of the Commissioner.

Edward M. Reeve _____

Date: July 12, 2018

I understand that checking this box constitutes my legal signature.

Utah System of Higher Education Program Description - Full Template

Section I: The Request

Utah State University requests approval to offer the following Baccalaureate degree(s): Bachelor of Science in Food Science effective Fall 2018. This program was approved by the institutional Board of Trustees on June 22, 2018.

Section II: Program Proposal

Program Description

Present a complete, formal program description.

This request is to establish a Bachelor of Science (BS) Food Science degree to replace the current Food Science emphasis area within the BS Nutrition, Dietetics and Food Sciences. The curriculum for the proposed BS Food Science degree will be exactly the same as for the current Food Science emphasis area following four year degree plan found in the USU course catalog: http://catalog.usu.edu/preview_program.php?catoid=12&poid=9618&returnto=3800

Consistency with Institutional Mission

Explain how the program is consistent with the institution's Regents-approved mission, roles, and goals (see mission and roles at higheredutah.org/policies/policy312) or, for "out of mission" program requests, the rationale for the request.

The proposed BS Food Science will replace the current Food Science emphasis of the BS in Nutrition, Dietetics and Food Sciences that is a long-established degree offering at Utah State University.

Section III: Needs Assessment

Program Rationale

Describe the institutional procedures used to arrive at a decision to offer the program. Briefly indicate why such a program should be initiated. State how the institution and the USHE benefit by offering the proposed program.

There are several reasons for the proposed change. The first reason for a separate BS Food Science degree is that the current Food Science emphasis within the BS Nutrition, Dietetics and Food Sciences is substantially independent and does not share a core curriculum with the other emphasis areas. The independence and separation of the current Food Science emphasis area is evidenced in that it is separately approved by the Institute of Food Technologists. The second reason for the request for a separate degree is to allow better advising and tracking of students and graduates. The final reason for the request for a separate degree is to offer a degree that is more focused and recognizable to students and stakeholders across the state and region, and degree separation will enhance marketing the proposed degree to specific targeted groups of potential students.

Labor Market Demand

Provide local, state, and/or national labor market data that speak to the need for this program. Occupational demand, wage, and number of annual openings information may be found at sources such as Utah DWS Occupation Information Data Viewer (jobs.utah.gov/jsp/wi/utalmis/gotoOccinfo.do) and the Occupation Outlook Handbook (www.bls.gov/oco).

Job Outlook: According to the Bureau of Labor Statistics, Employment of agriculture and food scientists is projected to grow 7 percent from 2016 to 2026, as fast as the average for all occupations. Employment of agricultural and food scientists is projected to grow as research into agricultural production methods and techniques continues and median pay is almost \$70,000 per year. (see: <https://www.bls.gov/ooh/life-physical-and-social-science/agricultural-and-food-scientists.htm>)

In the state of Utah, this occupation is expected to experience about average employment growth. The need for replacements, rather than business expansion, is projected to make up the majority of job openings in the coming decade. (see: <https://>

Student Demand

Provide evidence of student interest and demand that supports potential program enrollment. Use Appendix D to project five years' enrollments and graduates. Note: If the proposed program is an expansion of an existing program, present several years enrollment trends by headcount and/or by student credit hours that justify expansion.

Student demand for this proposed BS Food Science degree is expected to rise as changing from an emphasis area in the current degree to a standalone degree will increase the visibility of the individual program. Modest growth will be accommodated within the resources currently available in the department.

Similar Programs

Are similar programs offered elsewhere in the USHE, the state, or Intermountain Region? If yes, identify the existing program(s) and cite justifications for why the Regents should approve another program of this type. How does the proposed program differ from or compliment similar program(s)?

The proposed degree will replace the current emphasis and will not introduce additional overlap across programs in USHE.

Collaboration with and Impact on Other USHE Institutions

Indicate if the program will be delivered outside of designated service area; provide justification. Service areas are defined in higheredutah.org/policies/policy315/. Assess the impact the new program will have on other USHE institutions. Describe any discussions with other institutions pertaining to this program. Include any collaborative efforts that may have been proposed.

The proposed degree will replace the current emphasis and will not offer additional collaboration or impact other USHE institutions.

External Review and Accreditation

Indicate whether external consultants or, for a career and technical education program, program advisory committee were involved in the development of the proposed program. List the members of the external consultants or advisory committee and briefly describe their activities. If the program will seek special professional accreditation, project anticipated costs and a date for accreditation review.

The proposed degree will continue to be approved by the Institute of Food Technologists as is the current emphasis that it is replacing.

Section IV: Program Details

Graduation Standards and Number of Credits

Provide graduation standards. Provide justification if number of credit or clock hours exceeds credit limit for this program type described in R401-3.11, which can be found at higheredutah.org/policies/R401.

120 credits required

Admission Requirements

List admission requirements specific to the proposed program.

The proposed degree will replace the current emphasis and requirements for admission will remain unchanged as found in the University Catalog: <http://www.usu.edu/degrees/index.cfm?id=128>

Curriculum and Degree Map

Use the tables in Appendix A to provide a list of courses and Appendix B to provide a program Degree Map, also referred to as a graduation plan.

Section V: Institution, Faculty, and Staff Support

Institutional Readiness

How do existing administrative structures support the proposed program? Identify new organizational structures that may be needed to deliver the program. Will the proposed program impact the delivery of undergraduate and/or lower-division education? If yes, how?

The proposed degree will replace the current emphasis and will not require any adjustments to administrative or organizational structure of the institution.

Faculty

Describe faculty development activities that will support this program. Will existing faculty/instructors, including teaching/graduate assistants, be sufficient to instruct the program or will additional faculty be recruited? If needed, provide plans and resources to secure qualified faculty. Use Appendix C to provide detail on faculty profiles and new hires.

The proposed degree will replace the current emphasis and will be supported by existing faculty.

Staff

Describe the staff development activities that will support this program. Will existing staff such as administrative, secretarial/clerical, laboratory aides, advisors, be sufficient to support the program or will additional staff need to be hired? Provide plans and resources to secure qualified staff, as needed.

The proposed degree will replace the current emphasis and will be supported by existing staff.

Student Advisement

Describe how students in the proposed program will be advised.

The proposed degree will replace the current emphasis and will utilize the current advising provided through the Student Services of the College of Agriculture and Applied Sciences.

Library and Information Resources

Describe library resources required to offer the proposed program if any. List new library resources to be acquired.

The proposed degree will replace the current emphasis and will utilize the current library and information resources of Utah State University.

Projected Enrollment and Finance

Use Appendix D to provide projected enrollment and information on related operating expenses and funding sources.

Section VI: Program Evaluation

Program Assessment

Identify program goals. Describe the system of assessment to be used to evaluate and develop the program.

The proposed degree will replace the current emphasis and will follow the assessment plan currently in place for the emphasis.

That plan can be found at: <https://ndfs.usu.edu/assessment>

Student Standards of Performance

List the standards, competencies, and marketable skills students will have achieved at the time of graduation. How and why were these standards and competencies chosen? Include formative and summative assessment measures to be used to determine student learning outcomes.

The proposed degree is replacing the current emphasis and will require existing student standards of performance for the emphasis. The learning objectives and course map for the current emphasis can be accessed at: <https://ndfs.usu.edu/assessment>

Appendix A: Program Curriculum

List all courses, including new courses, to be offered in the proposed program by prefix, number, title, and credit hours (or credit equivalences). Indicate new courses with an X in the appropriate columns. The total number of credit hours should reflect the number of credits required to be awarded the degree.

For variable credits, please enter the minimum value in the table for credit hours. To explain variable credit in detail as well as any additional information, use the narrative box at the end of this appendix.

		Course Number	NEW Course	Course Title	Credit Hours
General Education Courses (list specific courses if recommended for this program on Degree Map)					
General Education Credit Hour Sub-Total					21
Required Courses					
<input type="radio"/>	<input type="radio"/>	CHEM 1210		Principles of Chemistry I	4
<input type="radio"/>	<input type="radio"/>	CHEM 1215		Chemical Principles Laboratory I	1
<input type="radio"/>	<input type="radio"/>	CHEM 1220		Principles of Chemistry II (BPS)	4
<input type="radio"/>	<input type="radio"/>	CHEM 1225		Chemical Principles Laboratory II	1
<input type="radio"/>	<input type="radio"/>	CHEM 2300		Principles of Organic Chemistry	3
<input type="radio"/>	<input type="radio"/>	CHEM 2315		Organic Chemistry Laboratory I	1
<input type="radio"/>	<input type="radio"/>	CHEM 3700		Introductory Biochemistry	3
<input type="radio"/>	<input type="radio"/>	CHEM 3710		Introductory Biochemistry Laboratory	1
<input type="radio"/>	<input type="radio"/>	BIOL 1610		Biology I	3
<input type="radio"/>	<input type="radio"/>	BIOL 1615		Biology I Laboratory	1
<input type="radio"/>	<input type="radio"/>	BIOL 3300		General Microbiology	4
<input type="radio"/>	<input type="radio"/>	CMST 2110		Interpersonal Communication (BHU)	3
<input type="radio"/>	<input type="radio"/>	STAT 2000		Statistical Methods	3
<input type="radio"/>	<input type="radio"/>	PHYS 2110		General Physics - Life Sciences	4
<input type="radio"/>	<input type="radio"/>	MATH 1050		College Algebra	4
<input type="radio"/>	<input type="radio"/>	MATH 1060		Trigonometry	2
<input type="radio"/>	<input type="radio"/>	MATH 1210		Calculus I (QL)	4
<input type="radio"/>	<input type="radio"/>	PSC 4600		Cereal Science (DSC/QI)	3
<input type="radio"/>	<input type="radio"/>	NDFS 1010		Chocolate Science, History and Society (BPS)	3

		Course Number	NEW Course	Course Title	Credit Hours
Choose of the following courses:					
+	-				
+	-	NDFS 1020		Science and Application of Human Nutrition (BLS)	3
+	-	NDFS 1250		Sanitation and Safety	3
+	-	NDFS 3110		Food, Technology, and Health (DSC)	3
+	-	NDFS 5020		Meat Technology and Processing	3
+	-	NDFS 5025		Meat Technology and Processing Laboratory	1
+	-	NDFS 5030		Dairy Technology and Processing	3
+	-	NDFS 5040		Dairy Foods Processing Laboratory	1
+	-	NDFS 5100		Sensory Evaluation of Foods (QI)	3
+	-	NDFS 5110		Food Microbiology (CI)	3
+	-	NDFS 5111		Food Microbiology Laboratory	1
+	-	NDFS 5250		Occupational Experience in Nutrition and Food Sciences	2
+	-	NDFS 5500		Food Analysis (QI)	4
+	-	NDFS 5560		Food Chemistry	4
+	-	NDFS 5920		Food Product Development (CI)	3
+	-	NDFS 5510		Food Laws and Regulations	2
Required Course Credit Hour Sub-Total					91
Elective Courses					
+	-	Any Elective		Students may choose any elective courses	8
Choose of the following courses:					
+	-				
+	-				
Elective Credit Hour Sub-Total					8
Core Curriculum Credit Hour Sub-Total					120

Program Curriculum Narrative

Describe any variable credits. You may also include additional curriculum information.

Degree Map

Degree maps pertain to undergraduate programs ONLY. Provide a degree map for proposed program. Degree Maps were approved by the State Board of Regents on July 17, 2014 as a degree completion measure. Degree maps or graduation plans are a suggested semester-by-semester class schedule that includes prefix, number, title, and semester hours. For more details see <http://higheredutah.org/pdf/agendas/201407/TAB%20A%202014-7-18.pdf> (Item #3).

Please cut-and-paste the degree map or manually enter the degree map in the table below.

First Year Fall	Cr. Hr.	First Year Spring	Cr. Hr.
CHEM 1210 - Principles of Chemistry I	4	CHEM 1220 - Principles of Chemistry II (BPS)	4
CHEM 1215 - Chem I Lab	1	CHEM 1225 - Chem II Lab	1
MATH 1050 - College Algebra (QL)	4	MATH 1060 - Trigonometry	2
NDFS 1010 - Chocolate (BPS)	3	NDFS 1020 - Science App Nutrition (BLS)	3
BSS Course	3	ENGL 1010 - Intro Writing (CL1)	3
		BAI Course	3
Total	15	Total	16
Second Year Fall	Cr. Hr.	Second Year Spring	Cr. Hr.
CHEM 2300 - Principles of Organic Chemistry	3	CHEM 3700 - Intro Biochemistry	3
CHEM 2315 - Organic Chem Lab	1	CHEM 3710 - Intro Biochem Lab	1
MATH 1210 - Calculus	4	STAT 2000 - Statistical Methods (QI)	3
BIOL 1610 - Biology I	3	NDFS 1250 - Sanitation and Safety	3
BIOL 1615 - Biology I Lab	1	BCA Course	3
NDFS 3110 - Food, Tech, and Health (DSC)	3	ENGL 2010 - Intermediate Writing (CL2)	3
Total	15	Total	16
Third Year Fall	Cr. Hr.	Third Year Spring	Cr. Hr.
NDFS 5020 - Meat Technology	3	NDFS 5100 - Sensory Eval Food (QI)	3
NDFS 5025 - Meat Tech lab	1	NDFS 5110 - Food Microbiology (CI)	3
NDFS 5560 - Food Chemistry	4	NDFS 5111 - Food Micro Lab	1
BIOL 3300 - Microbiology	4	NDFS 5500 - Food Analysis (QI)	4
PHYS 2110 - Physics for Life Sciences	4	PSC 4600 - Cereal Science (QI)	3
Total	16	Total	14
Fourth Year Fall	Cr. Hr.	Fourth Year Spring	Cr. Hr.
DHA Course	3	NDFS 5510 - Food Laws and Regulations	2
NDFS 5030 - Dairy Technology and Process	3	CMST 2110 - Interpersonal Comm (BHU)	3
NDFS 5040 - Dairy Tech Lab	1	DSS Course	3
NDFS 5920 - Food Prod Dev	3	Electives	5
NDFS 5250 - Occupational Experiences	2		
Elective Course	3		
Total	15	Total	13

Appendix C: Current and New Faculty / Staff Information

Part I. Department Faculty / Staff

Identify # of department faculty / staff (headcount) for the year preceding implementation of proposed program.

	# Tenured	# Tenure -Track	# Non -Tenure Track
Faculty: Full Time with Doctorate	13	4	1
Faculty: Part Time with Doctorate			
Faculty: Full Time with Masters			15
Faculty: Part Time with Masters			
Faculty: Full Time with Baccalaureate			
Faculty: Part Time with Baccalaureate			
Teaching / Graduate Assistants	////	////	
Staff: Full Time			17
Staff: Part Time			10

Part II. Proposed Program Faculty Profiles

List current faculty within the institution -- with academic qualifications -- to be used in support of the proposed program(s).

	First Name	Last Name	Tenure (T) / Tenure Track (TT) / Other	Degree	Institution where Credential was Earned	Est. % of time faculty member will dedicate to proposed program.	If "Other," describe
Full Time Faculty							
	Karin	Allen	T	PhD	Utah State University	5	
	Luis	Bastarrachea	TT	PhD	University of Massachusetts	45	
	Jeff	Broadbent	T	PhD	Utah State University	5	
	Charles	Carpenter	T	PhD	University of Wisconsin - Madison	5	
	Silvana	Martini	T	PhD	University of La Plata, Argentina	45	
	Donald	McMahon	T	PhD	Utah State University	30	
	Brian	Nummer	T	PhD	Clemson University	20	
	Marie	Walsh	T	PhD	North Carolina State University	40	
	Robert	Ward	T	PhD	University of California - Davis	45	
	Sulaiman	Matarneh	TT	PhD	Virginia Tech University	45	
Part Time Faculty							

Part III: New Faculty / Staff Projections for Proposed Program

Indicate the number of faculty / staff to be hired in the first three years of the program, if applicable. Include additional cost for these faculty / staff members in Appendix D.

	# Tenured	# Tenure -Track	# Non -Tenure Track	Academic or Industry Credentials Needed	Est. % of time to be dedicated to proposed program.

	# Tenured	# Tenure -Track	# Non -Tenure Track	Academic or Industry Credentials Needed	Est. % of time to be dedicated to proposed program.
Faculty: Full Time with Doctorate				No new faculty or staff required.	
Faculty: Part Time with Doctorate					
Faculty: Full Time with Masters					
Faculty: Part Time with Masters					
Faculty: Full Time with Baccalaureate					
Faculty: Part Time with Baccalaureate					
Teaching / Graduate Assistants					
Staff: Full Time					
Staff: Part Time					

Appendix D: Projected Program Participation and Finance

Part I.

Project the number of students who will be attracted to the proposed program as well as increased expenses, if any. Include new faculty & staff as described in Appendix C.

Three Year Projection: Program Participation and Department Budget						
	Year Preceding Implementation	New Program				
		Year 1	Year 2	Year 3	Year 4	Year 5
Student Data						
# of Majors in Department	253	260	270	285	295	300
# of Majors in Proposed Program(s)		30	35	40	45	50
# of Graduates from Department	51	53	55	58	60	63
# Graduates in New Program(s)		7	8	10	10	10
Department Financial Data						
	Department Budget					
	Year Preceding Implementation (Base Budget)	Year 1	Year 2	Year 3		
		Addition to Base Budget for New Program(s)	Addition to Base Budget for New Program(s)	Addition to Base Budget for New Program(s)		
<i>Project additional expenses associated with offering new program(s). Account for New Faculty as stated in Appendix C, "Faculty Projections."</i>						
EXPENSES – nature of additional costs required for proposed program(s)						
<i>List salary benefits for additional faculty/staff each year the positions will be filled. For example, if hiring faculty in year 2, include expense in years 2 and 3. List one-time operating expenses only in the year expended.</i>						
Personnel (Faculty & Staff Salary & Benefits)	\$3,177,123	\$0	\$0	\$0		
Operating Expenses (equipment, travel, resources)	\$161,147	\$0	\$0	\$0		
Other:						
TOTAL PROGRAM EXPENSES		\$0	\$0	\$0		
TOTAL EXPENSES	\$3,338,270	\$3,338,270	\$3,338,270	\$3,338,270		
FUNDING – source of funding to cover additional costs generated by proposed program(s)						
<i>Describe internal reallocation using Narrative 1 on the following page. Describe new sources of funding using Narrative 2.</i>						
Internal Reallocation	\$3,338,270					
Appropriation						
Special Legislative Appropriation						
Grants and Contracts						
Special Fees						
Tuition						
Differential Tuition (requires Regents approval)						
PROPOSED PROGRAM FUNDING		\$0	\$0	\$0		
TOTAL DEPARTMENT FUNDING	\$3,338,270	\$3,338,270	\$3,338,270	\$3,338,270		
Difference						
Funding - Expense	\$0	\$0	\$0	\$0		

Part II: Expense explanation

Expense Narrative

Describe expenses associated with the proposed program.

The proposed degree replaces a current emphasis and will not require reallocation or additional funding.

Part III: Describe funding sources

Revenue Narrative 1

Describe what internal reallocations, if applicable, are available and any impact to existing programs or services.

The proposed degree replaces a current emphasis and will not require additional funding.

Revenue Narrative 2

Describe new funding sources and plans to acquire the funds.

The proposed degree replaces a current emphasis and will not require reallocation or additional funding.