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Cover/Signature Page – Full Template

Institution Submitting Request: Utah State University
Proposed Title: Bachelors of Science in Horticulture
School or Division or Location: College of Agriculture and Applied Sciences
Department(s) or Area(s) Location: Plants, Soils, and Climate
Recommended Classification of Instructional Programs (CIP) Code¹ : 01.0601
Proposed Beginning Date: Fall 2015
Institutional Board of Trustees' Approval Date: February 28, 2014

Proposal Type (check all that apply):

Regents' Agenda Items		
<i>R401-4 and R401-5 Approval by Committee of the Whole</i>		
SECTION NO.		ITEM
4.1.1	<input type="checkbox"/>	(AAS) Associate of Applied Science Degree
4.1.2	<input type="checkbox"/>	(AA) Associate of Arts Degree
	<input type="checkbox"/>	(AS) Associate of Science Degree
4.1.3	<input type="checkbox"/>	Specialized Associate Degree
4.1.4	XX	Baccalaureate Degree
4.1.5	<input type="checkbox"/>	K-12 School Personnel Programs
4.1.6	<input type="checkbox"/>	Master's Degree
4.1.7	<input type="checkbox"/>	Doctoral Degree
5.2.2	<input type="checkbox"/>	(CER C) Certificate of Completion
5.2.4	<input type="checkbox"/>	Fast Tracked Certificate

Chief Academic Officer (or Designee) Signature:

I certify that all required institutional approvals have been obtained prior to submitting this request to the Office of the Commissioner.

Signature

Date: MM/DD/YEAR

Printed Name: *Name of CAO or Designee*

¹ CIP codes must be recommended by the submitting institution. For CIP code classifications, please see <http://nces.ed.gov/ipeds/cipcode/Default.aspx?y=55>.

**Executive Summary – Full Template
Utah State University
Bachelor of Science Degree in Horticulture
Fall, 2015**

Program Description

For 20-plus years, the Plants, Soils, and Climate Department (PSC) offered a Bachelor degree in Horticulture both on the Logan campus and along the Wasatch Front through USU's regional campuses. While every attempt was made to ensure regional campus students get the same training and experience as those on the Logan campus, their classes were unavailable at the regional campuses or could not be taught in the same way due to a lack of facilities. Recently the department changed the BS degree in Horticulture to a BS in Plant Science and with that change, the disparities between the regional campus course offerings and those offered at the Logan campus increased, making it problematic that USU regional campuses offer the Plant Science degree. Therefore, this is a proposal to modify the existing Plant Science BS degree so that it is, once again, a BS degree in Horticulture, but offered solely by USU's regional campuses. The degree's name "Horticulture" will more clearly reflect the applied nature of the program's curriculum and will best utilize the faculty and facilities available at the regional campuses.

Role and Mission Fit

Utah State University is the land grant institution of higher education in the state of Utah and has a long and successful history of agricultural programs in keeping with that mission. As stated above, the PSC department offered a BS in Horticulture in past decades and offering that same degree again for use at USU's regional campuses is in perfect alignment with both the department and university missions.

Faculty

All faculty exist in the department for a reoffering of a BS in Horticulture. No new faculty are required.

Market Demand

There is an existing market for students in horticulture along the Wasatch Front as well as throughout the region as evidenced by the long-standing history of this program, good placement, and growth of urban areas and associated horticultural industries.

Student Demand

The PSC regional campus horticulture program had been in place over 25 years and attracted students in viable numbers each year. Current headcount for the Plant Science BS degree option is approximately 70.

Statement of Financial Support

Funding for the program is already in place and additional funds are not required.

Similar Programs Already Offered in the USHE

None.

**Program Description – Full Template
Utah State University
Bachelor of Science in Horticulture
Fall, 2015**

Section I: The Request

Utah State University requests approval to offer a Bachelor of Science in Horticulture effective Fall 2015. This program was approved by the institutional Board of Trustees on February 28, 2014.

Section II: Program Description

Complete Program Description

The proposed Horticulture major is designed for students in USU's regional campus system along the Wasatch Front. It is limited to the field of ornamental horticulture and will prepare students for careers in arboriculture, nursery production, landscape maintenance or greenhouse crop production and related green industries. The curriculum is focused on the application of horticultural principles, including weed, insect, and disease control; soils; crop production; plant biology; and others. The degree is distinct from the Plant Science BS offered on the Logan campus by having less emphasis on the science of crop production.

Purpose of Degree

For over 20-plus years, the Plants, Soils, and Climate Department (PSC) offered a Bachelor of Science degree in Horticulture both on the Logan campus and along the Wasatch Front through USU's regional campuses. While every attempt was made to ensure regional campus students get the same training and experience as those on the Logan campus, there classes were unavailable at the regional campuses or could not be taught in the same way due to a lack of facilities at the regional campuses. Recently, the department changed the BS degree in Horticulture to a BS in Plant Science and with that change, the disparities between the regional campus course offerings and those offered at the Logan campus increased, making it problematic that USU regional campuses offer the Plant Science BS. Therefore, this is a proposal to modify the existing Plant Science degree so that it is, once again, a BS degree in Horticulture, but offered solely by USU's regional campuses. The degree's name "Horticulture" will more clearly reflect the applied nature of the program's curriculum and will best utilize the faculty and facilities available at the regional campuses.

Institutional Readiness

The PSC department offered a BS in Horticulture for decades and the change of that program to a Plant Science degree has been relatively recent. Therefore, the PSC department at USU has in place all necessary faculty and curriculum to recreate a Bachelor of Science in Horticulture.

Departmental Faculty

All the personnel necessary for the proposed horticulture program are currently in place. Logan-based department faculty members from the PSC department may travel to teaching sites or broadcast from the Logan campus. There is one full time faculty member based at the USU Salt Lake Center that will participate in the program by IVC or on-line. Some teaching, advising & program coordination will be done by program advisors in the department and college.

Staff

Advising, recruiting, and program coordination will be done by program advisors and faculty that are currently in place.

Library and Information Resources

Students have access to library and information resources through the USU Regional Campus system.

Admission Requirements

Students must have a 2.5 GPA to be admitted to the program. Students with a lower GPA may be admitted as a General Studies major with the option to improve their GPA and gain admission to the Horticulture program.

Student Advisement

Advising for students in the Bachelor of Science in Horticulture will be done by program advisors currently in place.

Justification for Graduation Standards and Number of Credits

Graduation standards are those accepted by Utah State University. The total credits required for completion of the BS in Horticulture will be 120 (see Section VI: Program Curriculum).

External Review and Accreditation

There are no accreditation programs for this degree, however, the Horticulture BS program was reviewed and approved by every external departmental review conducted during the twenty-plus years of the program's existence.

Projected Program Enrollment and Graduates; Projected Departmental Faculty/Students

Two BS degree offerings from PSC (Residential Landscape Design and Construction, and Plant Science offered through regional campuses) have had average enrollment of 100 students for over the last 5 years. Enrollment and graduation rates remain strong. There are opportunities for enrollment growth as a result of the development of closer ties with the arborist and general green industry in Utah as well as increased ties with the regional immigrant/refugee communities.

Expansion of Existing Program

No expansion of the program is currently planned.

Section III: Need

Program Need

The need for this program is clearly evidenced by the continuing enrollment of students and their employment in the Utah green industry and those of neighboring states. The Horticulture degree will serve an important need for place-bound, non-traditional students along the Wasatch Front by providing higher education training in horticulture not available from other state universities or colleges. We expect that in the future, students will continue to seek degrees in horticulture as opportunities in the related areas of urban farming, parks, landscape & golf course management, greenhouse & nursery management and government agency jobs, USDA, UDAF, increase.

Labor Market Demand

Success rates for students in the green industry after graduation are high. The Utah Department of Workforce Services describes the positions relating to First-Line Supervisors of Landscaping, Lawn Service, and Grounds Keeping Workers as having a good employment outlook and relatively high wages. The department also describes the field as having faster than average employment growth with a high volume of annual job openings. Business expansion, as opposed to the need for replacements, will provide the majority of job openings in the coming decade. This is likely due to the expectations of 1.6 million new residents in Utah by 2040 and 80% of these located along the Wasatch Front (Utah Legislature Briefing paper, Feb. 2014). As a result, coincident increased demands on urban landscapes will require expertise in this field obtained in the BS in Horticulture.

Students can receive industry certification and prepare for license tests while pursuing the Horticulture degree including the State of Utah Pesticide Applicators License, the Certified Nursery Professional through the Utah Nursery & Landscape Association, or Certified Arborist. As an example, all students who successfully complete PSC 2200 Pest Management Principles and Practices are also certified by the state as pesticide applicators.

Student Demand

Over the last five years (FY 2008-2013) the number of graduates of the Plant Science BS program at the regional campuses has been 20, 16, 11, 18, and 15, respectively. Since this new degree will be replacing the Plant Science degree, it's expected that the future enrollment demand will be similar and more likely grow as the industry increases in size due to increased regional populations.

Similar Programs

There are no similar programs offered in the USHE system. There are similar programs offered at BYU-Provo, BYU-Idaho, Colorado State University, Montana State University, University of Idaho, and the University of Wyoming. However, none of these programs are designed for place-bound students along the Utah Wasatch Front.

Collaboration with and Impact on Other USHE Institutions

No impact is expected on other higher education institutions in Utah because this would be the only USHE institution offering a BS in Horticulture.

Benefits

The BS in Horticulture will benefit students who are on a production/management career track in green and related industries.

Consistency with Institutional Mission

As stated above, the Horticulture degree was offered by the PSC Department in the recent past and it was, and will be again, a very relevant degree in keeping with USU's land-grant mission and agricultural and green industry emphasis.

Section IV: Program and Student Assessment

Program Assessment

The same process for assessment of the Horticulture BS program will be that used for the current Plant Science degree. As described in the External Review and Accreditation section above, the program will be reviewed by external departmental reviews held every five years.

Expected Standards of Performance

Standards are the same as all the PSC department degrees requiring a 2.5 cumulative GPA as a minimum for graduation.

Section V: Finance

Department Budget

All necessary faculty, advisors, and staff support are in place to deliver the BS in Horticulture and no new demands on the department budget will be needed.

Funding Sources

Revenue to the department is generated from the delivery of regional campus programs. This funding follows a long-standing institutional model based on tuition sharing.

Reallocation

Not applicable.

Impact on Existing Budgets

There will be no impact on the department's existing budget because the program's curriculum is comprised of courses already in place and delivered.

Section VI: Program Curriculum

The fundamental differences between the Logan campus Plant Science degree and the proposed regional campus Horticulture degree at Utah State University are as follows:

1. BIOL 4430 Introduction to Plant Pathology is not offered through RCA substitute, PSC 4900 Plant Diseases is offered in its place. This is a much more applied look at plant pathology and is much more focused on landscape disease issues. It is one credit less than BIOL 4430.
2. PSC 5550 Weed Biology and Control is offered off-campus as PSC 4550 Weed Management. This class is one credit less than PSC 5550 and reflects our inability to provide the same laboratory experience off-campus as is provided on-campus.
3. PHYS 1200 Introduction to Physics is not required in the regional campus program as the focus on science has been reduced.
4. PSC 5530 Soils and Plant Nutrient Bioavailability is not offered off-campus. As a substitution, the off-campus program offers PSC 4500 Soil Reclamation and PSC 3420 Irrigation Design (which fulfills the QI requirement previously obtained through PSC 5530).

5. There has long been an issue of how to provide an introduction to genetics and plant breeding for students who will not be pursuing it as a science. That need is met in the off-campus program with PSC 3600 An Introduction to Plant Breeding and Genetics for 2 credits.
6. The only plant biology course available to the off-campus students is PSC 3500 Structure and Function of Crop Plants. While it is less rigorous and detailed in plant biology than courses such as BIOL 4400 Plant Physiology, PSC 3700 Plant Propagation is being used in the Horticulture curriculum as an additional plant biology course. Electives within the PSC Department courses (such as Native Plants or Turfgrass Management) also provide additional plant biology within the context of the specific crops covered.
7. The Horticulture degree program requires the following production/management courses be taken:
 - a. PSC 2200 Pest Management Principles and Practices
 - b. PSC 2600 Annual and Perennial Plant Materials
 - c. PSC 2620 Woody Plant Materials
 - d. PSC 4050 Greenhouse Management and Crop Production
 - e. PSC 4200 Temperate Zone Fruit Production
 - f. PSC 4400 Modern Vegetable Production
8. The Horticulture degree offers the following recommended elective courses that are either not available to students taking the Plant Science degree on campus, or are not accepted electives in that BS degree program.
 - a. PSC 1800 Introduction to Horticulture
 - b. PSC 3010 Floral Design
 - c. PSC 3300 Residential Landscape Design
 - d. PSC 4900 Native Plants
9. The following courses are not accepted in the Horticulture degree, and are currently not available off-campus:
 - a. PSC 2800 Fundamentals of Organic Agriculture
 - b. PSC 4280 Field Crops
 - c. PSC 4310 World Food Crops
 - d. PSC 4320 Forage Production and Pasture Ecology
 - e. PSC 4600 Cereal Science

All Program Courses (with New Courses in Bold)

Course Prefix and Number	Course Title	Credit Hours
Required Courses		
ENGL 1010 CL	Introduction to Writing	3
ENGL 2010 CL	Intermediate Writing	3
Math 1050 QL	College Algebra	4
	American Institutions (AI)	3
	Creative Arts (CA) LAEP 1030 intro LAEP suggested	3
	Humanities (HU)	3
	Social Science (SS)	3
	DHA/CI course Hist 3850 or Hist 3950 suggested	3
	DSS FCDH 3350 Family Finance	3
ASTE 3050 CI	Technical & Professional Writing in Agriculture	3
PSC 3420 QI	Irrigation Design	2
CHEM 1110 PS	General Chemistry I	4
MATH 1050 QI	College Algebra	4
PSC 1050	Horticulture Orientation	1
PSC 4250	Internship	1-4

PSC 3000	Introductory Soil Science	4
WILD 2200	Ecology	3
BIOL 1610	Biology I	4
BIOL 1620	Biology II	4
BIOL 4500	Entomology	3
PSC 1800	Introduction to Horticulture	3
PSC 2200	Pest Management	3
PSC 2600	Herbaceous Plants	3
PSC 2620	Woody Plant materials	3
PSC 3400	Arboriculture	3
PSC 3500	Structure & Function of Plants	3
PSC 3600	Intro Plant Breeding & Genetics	2
PSC 3700	Plant Propagation	4
PSC 3810	Turf Management	3
PSC 4050	Greenhouse Management	4
PSC 4200	Temperate Fruit Production	3
Course Prefix and Number	Course Title	Credit Hours
Required Courses (cont.)		
PSC 4400	Modern Vegetable Production	3
PSC 4500	Soil Reclamation	3
PSC 4900	Plant Diseases	3
PSC 4550	Weed Management	3
	Sub-Total	111
Elective Courses Available	As needed to fill out program	(0-9)
PSC 3010	Floral Design	2
PSC 3300	Residential Landscape Design	3
PSC 4900	Native Plants	2
PSC 5100	Professional Turf & Landscape Water Conservation	3
	Sub-Total	9
	Total Number of Credits	120

Program Schedule

There is no standard class rotation because most students come with transfer credit. Assuming that most general education requirements have already been met, the following would be a typical program:

Fall even year PSC 1050 (1) Horticulture Orientation PSC 1800 (3) Introduction to Horticulture PSC 2620 (3) Woody Plant Materials 7 credit hours	Spring odd year PSC 2200 (3) Pest Management PSC 3700 (4) Plant Propagation 7 credit hours	Summer odd year PSC 2600 (3) Herbaceous Plants PSC 3500 (3) Structure & Function of Plants 6 credit hours
Fall odd year PSC 4200 (3) Fruit Production PSC 4550 (3) Weed Management 6 credit hours	Spring even year PSC 3400 (3) Arboriculture PSC 4050 (4) Greenhouse management 7 credit hours	Summer even year PSC 4900 (3) Plant Diseases FCHD 3350 (3) DSS Family Finance on line 6 credit hours
Fall even year PSC 3000 (4) Fundamental Soil Science PSC 4400 (3) Vegetable Production 7 credit hours	Spring odd year PSC 4500 (3) Soil Reclamation PSC 3420 (2) QI Irrigation design DHA/CI (3) Hist 3850 or 3950 on line 8 credit hours	Summer odd year Biol 4500 (3) Entomology PSC 3600 (2) Intro Plant Breeding PSC 4250 (1) Internship 6 credit hours
Fall odd year PSC 3810 (3) Turf Management WILD 2200 (3) Ecology on line 7 credit hours	With 34 transfer total credits would be 101. Remainder of credit could be filled by other transfer credit or remaining PSC classes including PSC 4250	51 upper division as outlined

Section VII: Faculty

No changes in faculty are needed since currently offered PSC classes will service the BS in Horticulture. All the personnel are currently in place.