

BOARD OF HIGHER EDUCATION
REQUEST FOR COMMITTEE AND BOARD ACTION

COMMITTEE: Academic Affairs

NO: AAC 13-17

COMMITTEE DATE: March 5, 2013

BOARD DATE: March 12, 2013

APPLICATION OF UNIVERSITY OF MASSACHUSETTS AMHERST TO AWARD THE BACHELOR OF SCIENCE IN SUSTAINABLE HORTICULTURE

MOVED: The Board of Higher Education hereby approves the application of **the University of Massachusetts Amherst** to award the **Bachelor of Science in Sustainable Horticulture**

Upon graduating the first class for these programs, the University shall submit to the Board a status report addressing its success in reaching program goals as stated in the application and in the areas of enrollment, curriculum, faculty resources, and program effectiveness.

Authority: Massachusetts General Laws Chapter 15A, Section 9(b)

Contact: Aundrea Kelley, Deputy Commissioner for P-16 Policy and Collaborative Initiatives

**BOARD OF HIGHER EDUCATION
March 2013
University of Massachusetts Amherst
Bachelor of Science in Sustainable Horticulture**

INTENT AND MISSION

The University of Massachusetts Amherst (UMA) has filed an expedited application for the approval of a proposed Bachelor of Science in Sustainable Horticulture.

The UMA College of Natural Sciences plans to merge the agricultural teaching programs in the Plant, Soils and Insect Sciences Department (PSIS) and the Stockbridge School of Agriculture (SSA) to better serve the needs of students today and into the future. Faculty will be assigned to a new agriculturally focused department to be called the Stockbridge School of Agriculture. This restructuring proposal has received unanimous support from the members of the PSIS faculty.

The proposed Sustainable Horticulture degree addresses the UMA mission of serving the public good in ways that are explicitly dedicated to economic viability, environmental integrity, and social equity, the three “pillars” of sustainability. UMA noted that a baccalaureate degree program will be better recognized by the public as a significant contribution to the life and vitality of the Commonwealth.

The Bachelor of Science in Sustainable Horticulture proposal has obtained all necessary governance approvals on campus and was approved by the UMA Board of Trustees on December 12, 2012. The required letter of intent was circulated on August 6, 2012. No comments were received.

NEED AND DEMAND

National and State Labor Market Outlook

UMA purports the next generation of students graduating from land grant institutions¹ will be faced with the challenge to redesign landscapes in response to diminishing supplies of fossil fuels and water as well as greater financial stress in public and private enterprises. UMA finds that Sustainable Horticulture or green industries are the largest segment of plant agriculture, by economic measures, in Massachusetts and New England and as a result UMA believes career opportunities exist both directly in the field and in related industries and services.

UMA also believes that the numerous new genera, species, and inter-specific hybrids of landscape plants being introduced make sustainable horticulture a dynamic field in plant agriculture. This increase of new plant material is seen by UMA to be the result of intensive private plant breeding efforts using traditional means and the application of new biotechnological methods. UMA finds the sustainable landscape field to be a fully globalized

¹ America’s system of public universities is the legacy of the Morrill Act of 1862 which established new public institutions in each state through the grant of federal lands. The original mission of these new institutions was to teach agriculture, military tactics, and the mechanic arts as well as classical studies so that members of the working classes could obtain a liberal, practical education. (See *The Association of Public and Land-grant Universities*, <http://www.aplu.org/page.aspx?pid=1565>)

industry with plant material, technology, equipment, and production supplies developed by businesses and academic institutions globally.

Student Demand

Current UMA two- and four-year students majoring in horticulture are reported to be a varied group that includes traditional, young high school graduate, non-traditional adult and transfer students. UMA finds that most do not have a background in a agricultural business and that students come from urban or suburban areas where they have worked in a green industry. UMA reports that this student population has grown by about 20% over the past 5-6 years to reach a current level of 45 students. It is believed that this growth will accelerate with the approval of the proposed Bachelor of Science in Sustainable Horticulture.

Duplication

UMA identified public universities in New England that offer similar programs and report that programs vary in student numbers, with the most competitive program in their estimation to be located at the University of Maine. UMA reported that each of the following baccalaureate programs serves primarily in-state students.

- University of Rhode Island – The *Environmental Horticulture and Turfgrass Management* major in the Department of Plant Sciences and Entomology.
- University of Connecticut – The *Horticulture* major in the Department of Plant Science and Landscape Architecture.
- University of Maine – The *Environmental Horticulture* major in the Department of Plant, Soil, & Environmental Sciences.
- University of Vermont – The *Sustainable Landscape Horticulture* major in the Department of Plant & Soil Sciences.

ACADEMIC AND RELATED MATTERS

Admission

Admission for new freshmen is determined in accordance with the Massachusetts Board of Higher Education minimum standards which emphasize strong academic preparation while in high school. Priority consideration for transfer admission is given to Massachusetts community college graduates who participate in the Joint Admissions or MassTransfer programs.

It is expected by UMA that on average, students will complete the degree requirements in eight semesters. Degree completion rates are estimated by UMA to be over 80% and it is planned that credits earned in this program will be completely transferable to other institutions.

Projected Enrollment

	# of Students Year 1	# of Students Year 2	# of Students Year 3	# of Students Year 4*
New Full Time	20	25	30	30
Continuing Full Time	35	40	45	55
New Part Time				
Continuing Part Time				
Totals	55	65	75	85

Program Effectiveness

Goal	Measurable Objective	Strategy for Achievement	Timetable
Increase student enrollment	Enrollment target of 85 students	Marketing	Years 1-4
Become primary source of trained employees within the green industries	Of all trained employees hired by the green industries, 80% will be UMass Sustainable Horticulture graduates	Market graduates to industries Maintain an educational program that addresses both current and future green industry needs	Years 1-4
Continue to provide individuals for graduate education	20% of graduates will pursue advanced degrees	Provide greater opportunities for fundamental scientific education	Years 1-4
Develop a specialty in sustainable landscape management	20% of graduates employed in sustainable management jobs	New coursework and internship opportunities	Years 1-4

UMA plans to assess the number of students entering and leaving the program each semester to adjust recruitment strategies as needed, and to alter the program or address any problems with retention as needed. UMA plans an annual survey of representatives of the various horticulture industries to determine employer perceptions regarding UMass graduates. Annually after graduation UMA plans to track graduates to determine their success in acquiring employment and completing graduate degree programs.

Curriculum (Attachment A)

The proposed Sustainable Horticulture curriculum is designed to provide students science-based education which can then be applied in a wide variety of jobs in landscape plant production and use of plant materials in constructed and natural landscapes. The proposed curriculum will provide knowledge in plant biology, soil and nutrient management, potential harmful insect pests and plant diseases, and beneficial organisms which help support plants. The basic science courses are designed to complement a number of applied horticulture courses in both landscape and edible crops. Two focus areas, science or business, are available to students based on future career plans. A total of 120 credits are required to complete the degree.

Field Experiences and Internships

Students in the proposed program will be provided the opportunity to earn elective credits and gain work experience by enrolling in an internship directly related to horticulture. Students choosing an internship would enroll in the practicum and identify, with the help of their advisor, a suitable horticulture internship sponsor. UMA plans that the proposed internships could last for a summer, a semester, or academic year. Internship students would be evaluated and graded for the practicum by submittal of a detailed written report and analysis of the internship and/or a seminar as well as periodic written evaluations of the student's performance by the student's employer.

RESOURCES AND BUDGET

Fiscal (Attachment B)

The proposed Bachelor of Science in Sustainable Horticulture is built upon the existing Horticulture concentration within the current BSPSIS degree program. Staff, facilities, equipment and library and information technology resources will be reallocated from the PSIS department to the SSA.

Faculty and Administration (Attachment C)

Faculty will be assigned to the proposed program from the existing BSPSIS major (which will cease to exist). No other administrative changes are planned.

Affiliations and Partnerships

A proposed external advisory panel consisting of several industry leaders or trade association representatives, an educator from a high school horticulture program, a professional from UMass Extension² and interested members of the environmental or sustainability communities, will help review and enhance the proposed Sustainable Horticulture program. The panel is expected to meet annually to review the curriculum and to make recommendations for improvements, study future issues, and identify directions for the program.

² UMass Extension is the educational outreach unit of the UMass Amherst Center for Agriculture and part of the national Cooperative Extension System, works across all regions of the Commonwealth of Massachusetts

EXTERNAL REVIEW AND INSTITUTIONAL RESPONSE

The proposed Sustainable Horticulture program was reviewed by Dr. Paul E Cappiello, Executive Director of Yew Dell Botanical Gardens in Crestwood Kentucky and Dr. James Swasey (professor emeritus) in the Department of Plant & Soil Sciences at the University of Delaware.

Both reviewers agreed that the proposed program is aligned with the University mission and goals and that generally the curriculum is appropriate for the BS degree. Both reviewers highlighted the faculty as the strength of the proposed program. Both reviewers raised some concerns regarding details within the proposed curriculum. One reviewer suggested updates to include specifics on topics covered, grading procedures and policies, and faculty expectations. This same reviewer commented on the length and value of internships suggesting a minimum of 12 weeks. The other reviewer suggested the addition of classes in plant pathology and entomology, landscaping, basic proficiency in the Spanish language, and access to business classes.

Dr. Wesley R. Autio, Director of SSA at UMA, expressed appreciation for the positive reviews and responded that the suggestions for change were minor, easily implemented and supported by the faculty. He further commented that the concerns regarding the lack of coursework in plant pathology and other areas were the result of limited details in the course descriptions, and that in fact these areas are covered in the curriculum. Dr. Autio also responded that landscape design courses could be included in the curriculum, but the program does not want to compete with or duplicate offerings from the Department of Landscape Architecture & Regional Planning. He commented that the idea to include Spanish as a requirement was an excellent one. The university plans to begin addressing this concern by calling on advisors to recommend that students pursue basic Spanish proficiency as part of their career path.

Curriculum Outline (Attachment A)

Core Courses (# Total courses required = 7)		
<i>Course Number</i>	<i>Course Title</i>	<i>Credit Hours</i>
Biological Sciences:		
PLSOILIN 102	Introductory Botany	4
STOCKSCH 105	Introductory Soil Science	4
Ecosystem Studies -- select one of the following courses:		3-4
PLSOILIN 115	Environmental Biology (SI)	3
ENVIRSCI 214	Principles of Environmental Biology	3
NRC 100	Society and Environment (SI)	3
BIOLOGY 287	Introductory Ecology	3
STOCKSCH 398P	Permaculture	4
Math, Statistics, and Reasoning:		
Basic math	R1 course (MATH 101/102 or MATH 104)	3-4
Analytical reasoning	R2 course (RES-ECON 211, STATISTIC 111, or STATISTIC 240)	3
Chemistry – select one of the following:		4
CHEM 110	General Chemistry	4
CHEM 111	General Chemistry	4
Junior Writing – select one of the following:		3
STOCKSCH 380	Junior Writing	3
STOCKSCH 382	Writing for Sustainability	3
Select one of the following:		3
		Sub Total Core Credits 24-26
Other Required Courses (# Total courses required = 6-7)		
<i>Course Number</i>	<i>Course Title</i>	<i>Credit Hours</i>
Horticulture Courses (select two):		6-7
STOCKSCH 200	Plant Propagation	3
STOCKSCH 230	Introduction to Turf Management	3
STOCKSCH 315	Greenhouse Management	4
STOCKSCH 340	Advanced Turf Management	3
Plant Physiology:		
PLSOILIN 397P	Introductory Plant Physiology	3
Plant Nutrition (select one):		3-4
STOCKSCH 530	Plant Nutrition	4
STOCKSCH 580	Soil Fertility	3
Pest Management :		
PLNTSOIL 505	General Plant Pathology	4
Select three credits:		3-4
PLSOILIN 326	Insect Biology	3
PLSOILIN 397F	Insect Ecology and Management	3

STOCKSCH 101	Insects and Related Forms	2	
STOCKSCH 109	Insects of Ornamentals	2	
STOCKSCH 397F	Turf Insects	2	
	Sub Total Other Required Course Credits		19-22
Restricted Elective Courses (# Total courses required = 5)			
<i>Course Number</i>	<i>Course Title</i>		<i>Credit Hours</i>
Restricted Electives			15
Select at least 15 credits from those listed below. Of the 15 credits, 6 must be at or above the 500 level, and no more than 6 can be taken outside the Department. The courses are listed in specialty areas for guidance, but students are not required to take Restricted Electives from any one area. Credits taken to satisfy concentration requirements in other areas of the Core and for other Concentration Requirements cannot be counted as Restricted Electives.			
Commercial Floriculture and Garden Center Management:			
BIOLOGY 426	New England Flora	3	
ENVIRDES 335	Plants in the Landscape I	4	
PLSOILIN 321	Greenhouse Crop Production I	3	
PLSOILIN 335	Greenhouse Crop Production II	4	
STOCKSCH 255	Herbaceous Plants	3	
STOCKSCH 315	Greenhouse Management	4	
Landscape Horticulture and Nursery Management:			
BIOLOGY 426	New England Flora	3	
ENVIRDES 335	Plants in the Landscape I	4	
NRC 232	Principles of Arboriculture	3	
STOCKSCH 255	Herbaceous Plants	3	
STOCKSCH 310	Weed Management	3	
Turf Management:			
STOCKSCH 230	Introduction to Turf Management	3	
STOCKSCH 234	Irrigation and Drainage	2	
STOCKSCH 240	Turf Calculations	2	
STOCKSCH 275	Turfgrass Physiology and Ecology	3	
STOCKSCH 310	Weed Management	3	
Food Crops:			
STOCKSCH 120	Organic Farming and Gardening	4	
STOCKSCH 300	Deciduous Orchard Science	3	
STOCKSCH 305	Small Fruit Production	3	
STOCKSCH 310	Weed Management	3	
STOCKSCH 325	Vegetable Crop Production	4	
STOCKSCH 350	Soil & Crop Management	3	
Breeding and Propagation:			
BIOLOGY 283	Genetics	3	
PLNTSOIL 540	Plant Breeding	3	
PLNTSOIL 597G	Plant Biotechnology	3	
STOCKSCH 200	Plant Propagation	3	

Crop Physiology:		
BIOLOGY 510	Plant Physiology	3
PLNTSOIL 545	Postharvest Physiology	4
PLNTSOIL 590A	Plant Stress Physiology	3
STOCKSCH 520	Physiology of Crop Yields	3
STOCKSCH 550	Plant Growth Regulators	3
Plant Nutrition and Soils:		
STOCKSCH 515	Soil Microbiology	3
STOCKSCH 530	Plant Nutrition	4
STOCKSCH 565	Soil Formation and Classification	4
STOCKSCH 570	Soil Physics	3
STOCKSCH 576	Environmental Soil Chemistry	4
STOCKSCH 580	Soil Fertility	3
STOCKSCH 585	Inorganic Contaminants in Soil, Water, and Sediment	3
STOCKSCH 830	Advanced Soil Chemistry	3
Pest Management:		
ENTOMOL 523	Biological Control	3
ENTOMOL 572	Forest and Shade Tree Entomology	3
ENTOMOL 581	Integrated Pest Management	4
PLSOILIN 397K	Insect Ecology and Management	3
PLSOILIN 510	Management and Ecology of Plant Diseases	3
PLNTSOIL 535	Diagnostic Plant Pathology	4
PLNTSOIL 555	Urban Environment and Plant Growth	3
PLNTSOIL 597A	Phyto-bioremediation	3
STOCKSCH 107	Turf Insects	2
STOCKSCH 109	Insects of Ornamentals	3
STOCKSCH 397f	Pest Management for Greenhouse Crops	2
STOCKSCH560	Advanced Weed Science	3
STOCKSCH597V	Integrated Turf Management	3
Sub Total Restricted Elective Credits		15
Science or Business Courses (# Total courses required = 4)		
A focus area is not a formal designation in the University, but students in Sustainable Horticulture must complete a focus area of either Science or Business within this concentration selection. For the Business Focus, the student must complete any four business, management, or economics courses. Students completing the Science Focus must select four courses in science, one from each of the four categories below.		
General Chemistry:		
CHEM 112	General Chemistry II (PS)	4
Calculus:		
MATH 127 or 131	Calculus I	3
Organic Chemistry (select one of the following):		3

CHEM 250	Organic Chemistry	3	
CHEM 261	Organic Chemistry I	3	
BIOCHEM 285	Cell and Molecular Biology	3	
Biology (select one of the following):			4
BIOLOGY 100	General Biology	4	
BIOLOGY 103	Plant Biology	4	
Sub Total Science or Business Credits			12-15
Advanced Elective Courses (# Total courses required = 2)			
<i>Course Number</i>	<i>Course Title</i>	<i>Credit Hours</i>	
STOCKSCH 500+	Students must select two additional courses at the 500-level or higher including those that have being used to satisfy a previously listed requirement. Courses not from STOCKSCH must be approved by the Academic Adviser.	6-8	
Sub Total Advanced Elective Credits			6-8
Distribution of General Education Requirements			# of Credits
Attach List of General Education Offerings (Course Numbers, Titles, and Credits)			
Writing			6
Arts and Humanities, including Literature and Foreign Languages			8
Mathematics and the Natural and Physical Sciences			6
Biological and Physical Sciences			8
Social Sciences			8
Sub Total General Education Credits			36
Curriculum Summary			
Total number of courses required for the degree		30-40	
Total credit hours required for degree		120	
Prerequisite or Other Additional Requirements:			
Note that students must take a minimum of 30 credits from within the Stockbridge School of Agriculture.			

Program Budget (Attachment B)

EXPENDITURE ESTIMATES										
	Year 1 2013		Year 2 2014		Year 3 2015		Year 4 2016		Year 5 2017	
	New Expenditures required for Program	Expenditures from current resources	New Expenditures required for Program	Expenditures from current resources	New Expenditures required for Program	Expenditures from current resources	New Expenditures required for Program	Expenditures from current resources	New Expenditures required for Program	Expenditures from current resources
Personnel Services										
Faculty	\$0	\$198,150	\$0	\$205,085	\$0	\$212,263	\$0	\$219,692	\$0	\$227,382
Administrators	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Support Staff	\$0	\$9,188	\$0	\$9,510	\$0	\$9,842	\$0	\$10,187	\$0	\$10,543
Others <i>Lecturers</i>	\$0	\$16,228	\$0	\$16,715	\$0	\$17,216	\$0	\$17,733	\$0	\$18,265
Fringe Benefits ____%	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total Personnel	\$0	\$223,566	\$0	\$231,310	\$0	\$239,321	\$0	\$247,612	\$0	\$256,190
Operating Expenses										
Supplies	\$0	\$5,500	\$0	\$6,000	\$0	\$6,000	\$0	\$6,500	\$0	\$6,000
Library Resources	\$0	\$700	\$0	\$200	\$0	\$0	\$0	\$0	\$0	\$0
Marketing/Promotional Expenses	\$0	\$1,000	\$0	\$1,000	\$0	\$1,000	\$0	\$500	\$0	\$0
Laboratory Expenses	\$0	\$4,600	\$0	\$4,600	\$0	\$4,800	\$0	\$4,800	\$0	\$5,800
General Administrative Overhead	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Other (specify)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total Operating Expenses	\$0	\$11,800	\$0	\$11,800	\$0	\$11,800	\$0	\$11,800	\$0	\$11,800
Net Student Assistance										
Assistantships	\$0	\$28,175	\$0	\$29,161	\$0	\$30,182	\$0	\$31,238	\$0	\$32,331
Fellowships	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Stipends/Scholarships	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total Student Assistance	\$0	\$28,175	\$0	\$29,161	\$0	\$30,182	\$0	\$31,238	\$0	\$32,331
Capital										
Facilities / Campus recharges	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Equipment	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Other	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total Capital	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total Expenditures	\$0	\$263,541	\$0	\$272,271	\$0	\$281,303	\$0	\$290,650	\$0	\$300,321
BUDGET SUMMARY OF NEW PROGRAM ONLY						Justification of Financial Projections:				
	Year 1 2013	Year 2 2014	Year 3 2015	Year 4 2016	Year 5 2017	The expenses and revenues presented in this worksheet are based on an existing B.S. subplan. Expenses and revenues will be similar. It is expected, however, that enhanced visibility and marketing will result in an increase in the number of students enrolled in the program.				
Total of newly generated revenue	\$164,380	\$392,032	\$682,956	\$948,656	\$1,075,200					
Total of additional resources required for program	\$0	\$0	\$0	\$0	\$0					
Excess/ (Deficiency)	\$164,380	\$392,032	\$682,956	\$948,656	\$1,075,200					

REVENUE ESTIMATES										
	Year 1 2012		Year 2 2013		Year 3 2014		Year 4 2015		Year 5 2016	
<i>Full-Time Tuition Rate: In-State</i>	\$1,714		\$1,714		\$1,714		\$1,714		\$1,714	
<i>Full-Time Tuition Rate: Out-State</i>	\$9,973		\$9,973		\$9,973		\$9,973		\$9,973	
<i>Mandatory Fees per Student (In-state)</i>	\$10,898		\$10,898		\$10,898		\$10,898		\$10,898	
<i>Mandatory Fees per Student (out-state)</i>	\$15,463		\$15,463		\$15,463		\$15,463		\$15,463	
<i>FTE # of New Students: In-State</i>	9		21		36		49		55	
<i>FTE # of New Students: Out-State</i>	2		5		9		13		15	
<i># of In-State FTE Students transferring in from the institution's existing programs</i>		35		32		24		18		16
<i># of Out-State FTE Students transferring in from the institution's existing programs</i>		9		7		6		5		4
Tuition and Fees	Newly Generated Revenue	Revenue from existing programs	Newly Generated Revenue	Revenue from existing programs	Newly Generated Revenue	Revenue from existing programs	Newly Generated Revenue	Revenue from existing programs	Newly Generated Revenue	Revenue from existing programs
First Year Students										
Tuition										
In-State	\$15,426	\$0	\$20,568	\$0	\$25,710	\$0	\$25,710	\$0	\$25,710	\$0
Out-of-State	\$19,946	\$0	\$29,919	\$0	\$39,892	\$0	\$39,892	\$0	\$39,892	\$0
Mandatory Fees	\$129,008	\$0	\$177,165	\$0	\$225,322	\$0	\$225,322	\$0	\$225,322	\$0
Second Year Students										
Tuition										
In-State	\$0	\$15,426	\$15,426	\$5,142	\$20,568	\$5,142	\$22,282	\$6,856	\$22,282	\$8,570
Out-of-State	\$0	\$19,946	\$19,946	\$0	\$29,919	\$0	\$39,892	\$9,973	\$39,892	\$9,973
Mandatory Fees	\$0	\$129,008	\$129,008	\$32,694	\$177,165	\$32,694	\$203,526	\$59,055	\$203,526	\$69,953
Third Year Students										
Tuition										
In-State	\$0	\$20,568	\$0	\$25,710	\$15,426	\$8,570	\$20,568	\$11,998	\$22,282	\$6,856
Out-of-State	\$0	\$29,919	\$0	\$29,919	\$19,946	\$9,973	\$29,919	\$19,945	\$39,892	\$9,973
Mandatory Fees	\$0	\$177,165	\$0	\$209,859	\$129,008	\$69,953	\$177,165	\$107,212	\$203,526	\$59,055
Fourth Year Students										
Tuition										
In-State	\$0	\$20,568	\$0	\$20,568	\$0	\$23,996	\$15,426	\$8,570	\$18,854	\$11,998
Out-of-State	\$0	\$29,919	\$0	\$29,919	\$0	\$39,892	\$19,946	\$9,973	\$19,946	\$19,946
Mandatory Fees	\$0	\$177,165	\$0	\$177,165	\$0	\$214,424	\$129,008	\$69,953	\$150,804	\$107,212
Fifth Year Students										
Tuition										
In-State	\$0	\$3,428	\$0	\$3,428	\$0	\$3,428	\$0	\$3,428	\$5,142	\$0
Out-of-State	\$0	\$9,973	\$0	\$9,973	\$0	\$9,973	\$0	\$9,973	\$9,973	\$0
Mandatory Fees	\$0	\$37,259	\$0	\$37,259	\$0	\$37,259	\$0	\$37,259	\$48,157	\$0
Gross Tuition and Fees	\$164,380	\$670,344	\$392,032	\$581,636	\$682,956	\$455,304	\$948,656	\$354,195	\$1,075,200	\$303,536
Grants	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Contracts	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Campus budget allocation	\$0	\$247,313	\$0	\$255,556	\$0	\$264,087	\$0	\$272,917	\$0	\$282,056
Other Revenues (specify)	\$0	\$16,228	\$0	\$16,715	\$0	\$17,216	\$0	\$17,733	\$0	\$18,265
Total	\$164,380	\$933,885	\$392,032	\$853,907	\$682,956	\$736,607	\$948,656	\$644,845	\$1,075,200	\$603,857

Faculty Form (Attachment C)

Name of faculty member (Name, Degree and Field, Title)	Tenured Y/N	Courses Taught Put (C) to indicate core course. Put (OL) next to any course currently taught online.	# of sections	Division or College of Employment	Full- or Part-time in Program	Full- or part- time in other department or program (Please specify)	Sites where individual will teach program courses
Autio, Wesley Ph.D. in Pomology Professor	Y	<ul style="list-style-type: none"> •Botany for Gardeners (C) •Pruning Fruit Crops •Intermediate Biometry •Data Anal & Interpretation 	(1) (1) (1) (2)	College of Natural Sciences	Full-time	No	• Main Campus
Barker, Allen Ph.D. in Soil Science Professor	Y	<ul style="list-style-type: none"> •Plant Nutrients •Org Farm & Gardeners (OL) •Plant Nutrition •Soil Fertility •Hydroponics 	(1) (5) (1) (1) (1)	College of Natural Sciences	Full-time	No	• Main Campus
Bhowmik, Prasanta Ph.D. in Weed Science Professor	Y	<ul style="list-style-type: none"> •Principals Weed Managmnt •Organic Weed Control •Advanced Weed Science 	(1) (1) (1)	College of Natural Sciences	Full-time	No	• Main Campus
Childs, Robert M.S. in Entomology Extension Educator	N	<ul style="list-style-type: none"> •Insects & Related Forms •Insects of Ornamentals •Prin. Pesticide Man 	(1) (1) (1)	College of Natural Sciences	Full-time	No	• Main Campus
Cox, Douglas Ph.D. in Floriculture Associate Professor	Y	<ul style="list-style-type: none"> •Plant Propagation •Greenhouse Management •Herbaceous Plants 	(1) (1) (1)	College of Natural Sciences	Full-time	No	• Main Campus
Craker, Lyle Ph.D. in Agronomy Professor	Y	<ul style="list-style-type: none"> •Herbs/Spice/Med Plant •Technical Writing (C) 	(2) (1)	College of Natural Sciences	Full-time	No	• Main Campus
Ebdon, J. Scott Ph.D. in Turfgrass Sci. Associate Professor	Y	<ul style="list-style-type: none"> •Intro to Turfgrass Manag (C) •App Calc in Turfgrass Manag •Advanced Turfgrass Man (C) •Integrated Turf Management •Turf Practicum 	(1) (1) (1) (1) (1)	College of Natural Sciences	Full-time	Yes	• Main Campus
Gerger, John Ph.D. in Olericulture Professor	Y	<ul style="list-style-type: none"> •Botany for Gardeners (C,OL) •Sustainable Living •Sustainable Agriculture •Writing for Sustain (C) •Project Development in SFF 	(6) (1) (2) (1) (1)	College of Natural Sciences	Full-time	No	• Main Campus
Greene, Duane Ph.D. in Horticulture Professor	Y	<ul style="list-style-type: none"> •Deciduous Orchard Science •Small Fruit Production •Plant Growth Regulators 	(1) (1) (1)	College of Natural Sciences	Full-time	No	• Main Campus
Griffin, Thomas M.S. in Turf Science Instructor	N	<ul style="list-style-type: none"> •Turf Machinery •Irrigation and Drainage 	(1) (1)	College of Natural Sciences	Full-time	No	• Main Campus

Hashemi, Masoud Ph.D. in Agronomy Ext. Assistant Professor	N	<ul style="list-style-type: none"> •Crop & Soil Management •Pasture Management 	(1) (1)	College of Natural Sciences	Full-time	No	<ul style="list-style-type: none"> • Main Campus
Hazzard, Ruth M.S. in Entomology Extension Educator	N	<ul style="list-style-type: none"> •Student Farming Enterprise 	(2)	College of Natural Sciences	Full-time	No	<ul style="list-style-type: none"> • Main Campus
Herbert, Stephen Ph.D. in Agronomy Professor	Y	<ul style="list-style-type: none"> •Tropical Agriculture •Crop Physiology 	(1) (1)	College of Natural Sciences	Full-time	No	<ul style="list-style-type: none"> • Main Campus
Mangan, Francis Ph.D. in Plant/Soil Sci. Ext. Associate Professor	N	<ul style="list-style-type: none"> •Vegetable Crop Production 	(1)	College of Natural Sciences	Full-time	No	<ul style="list-style-type: none"> • Main Campus
Simkins, Stephen Ph.D. in Env. Soils Associate Professor	Y	<ul style="list-style-type: none"> •Introductory Soil Science (C) •Soil Microbiology •Environmental Toxicology •Organic Contaminants Soil 	(1) (1) (1) (1)	College of Natural Sciences	Full-time	No	<ul style="list-style-type: none"> • Main Campus
Spargo, John Ph.D. in Soil Fertility Ext. Assistant Professor	N	<ul style="list-style-type: none"> •Introductory Soil Science (C) 	(1)	College of Natural Sciences	Full-time	No	<ul style="list-style-type: none"> • Main Campus
Xing, Baoshan Ph.D. in Env. Soil Chem. Professor	Y	<ul style="list-style-type: none"> •Environmental Soil Chemistry •Inorganic Contaminants Soil •Advanced Soil Chemistry •Environ Impacts Nanomaterials 	(1) (1) (1) (1)	College of Natural Sciences	Full-time	No	<ul style="list-style-type: none"> • Main Campus