

FORM TO REQUEST SUBSTANTIAL CHANGES TO AN EXISTING UNDERGRADUATE MAJOR

A request for substantial changes to an existing program requires approval from the school director/department head (managing administrator), college academic dean, Curricular Affairs, Undergraduate Council (UGC), and College Academic Administrators Council (CAAC). Additional approvals may be required, depending on the requested changes. Complete this form and submit to Martin Marquez (martinmarquez@email.arizona.edu) no later than October 25, 2019 to be considered for inclusion in the 2020-2021 Academic Catalog.

- I. **Requested by (College & School/Department):** Biosystems Engineering Department, Environmental Science Department, and the School of Plant Sciences, College of Agriculture and Life Sciences
- II. **Proposer's name, title, email and phone number:**
Dr. Kitt Farrell-Poe, Head of Biosystems Engineering Department, kittfp@email.arizona.edu, 626-9120
Dr. Jon Chorover, Head of Environmental Science Department, chorover@email.arizona.edu, 621-7228
Dr. Matt Jenks, Director of the School of Plant Sciences, jenksm@email.arizona.edu, 621-1977
- III. **Degree, major and number of students enrolled in the major. If you have emphases (sub-plans), list the number of students enrolled by emphasis:**

Sustainable Plant Systems, 58 majors

Emphasis areas:

Agronomy	9
Controlled Environment Agriculture	22
Environmental Horticulture	6
Fresh Produce Safety	11
Undeclared	10

- IV. **Describe proposed changes to the major. Provide a rationale and explanation for making changes to the major and include any relevant supporting data. Are the changes proposed a result of Annual Program Review (APR) and/or a result from the assessment of programmatic outcomes? If you are requesting a name change, please indicate if the subject code (course prefix) will also change. Include requested new prefix code and description.**

The Sustainable Plant Systems (SPS) BS degree is offered on main campus and at Yuma. The degree has been jointly administered by the Environmental Science Department (ENVS) and the School of Plant Sciences (PS). The degree is now being shared among the Biosystems Engineering Department (BE), ENVS, and PS. The SPS curriculum is undergoing a major revision to reflect changes in course offerings, and to provide a more uniform curriculum for Yuma and main campus students. Many of these changes are in emphasis areas (provided on additional Request Substantial Changes to an Existing Undergraduate Major forms).

The proposed core requirements will include addition of:

- A soil management course (ENVS 300 *Soil Ecology of Sustainable Systems* or ASM 404 *Irrigation Principles and Management*) that emphasizes management practices compatible with responsible and sustainable use of water and agricultural soil resources.
- ENTO 468 *Insect Pest Management*, ENTO 497C *Greenhouse Pest Management: Methods and Practice*, or ENTO 300 *Insect Pest Management for Desert Cropping Systems*. These courses all focus on identification, behavior, and control of insect pests which are a major cause of crop loss. The existing core offers ENTO 497C as an optional course, but an insect management course was not required as it is in the proposed core curriculum. As discussed below, most peer institution curricula require an insect management course.
- An internship or similar learning experience. Internships provide students with invaluable 'real-life' work experiences. The senior capstone class will revolve around student internship experiences by developing written and oral presentations based on internships, as well as other career preparation. A communications course will be

required in response to potential employers' presentations to students. The top skill noted by potential employers is the ability to communicate effectively both verbally.

- The number choices for colloquium classes has been reduced. ENVS 195B *Careers in Crop Production*, which is not currently being offered, was removed. PLS 195B *The Science Underpinning GMOs and Organics* has also been removed, requiring all Tucson student to take PLS 195A *How Will We Feed and Clothe 9 Billion People in 2050?* To facilitate establishment of a student cohort consisting of all Tucson Sustainable Plant Systems majors.
- PLS 397A *Yuma Production Systems* was moved from the Fresh Produce Safety emphasis area into the core to make the core more uniform, and to facilitate anticipated expansion of the areas of emphasis offered to Yuma students.

Economics (ECON 200) will be removed from the supporting coursework. The Sustainable Plant Systems Curriculum Committee felt that not all Sustainable Plant Systems students should be required to complete this course. Half of the reviewed peer institution programs do not require an economics course.

The selectives available for communication skills has been reduced. The intent of this reduction is to direct students to courses that are more tailored towards the types of communication skills required of Sustainable Plant Systems majors. Some classes were removed in response to negative feedback from students.

Proposed changes to the Sustainable Plant Systems emphasis areas are described on accompanying "Form To Request Substantial Changes to an Existing Undergraduate Major" submissions.

- V. **Comparison Chart**—complete the chart below using your existing [academic advisement report](#). You may not need to complete all portions. Highlight row(s) indicating the proposed significant changes. You can find course information to help complete the chart below by using the [UA course catalog](#) or [UAnalytics](#) (Catalog and Schedule Dashboard> "Printable Course Descriptions by Department" On Demand Report; right side of screen). Proposed changes resulting in similar curriculum with other plans (within department, college, or university) may require completion of an additional comparison chart.

	Existing Major Requirements	Requirements For Modified Major
Major, emphasis (if applicable) and degree *	UGRD.UAGSC.SPSBS	UGRD.UAGSC.SPSBS
CIP Code –lookup here or contact Martin Marquez for assistance, if needed	01.9999 Agriculture, Agriculture/Operations/and Related Sciences	01.9999 Agriculture, Agriculture/Operations/and Related Sciences
Total units required to complete the degree*	120	120
Upper -division units required to complete the degree	42	42
Total CC transfer units that may apply to this degree*	64	64
Foundation courses		
Math	Substantial Math Strand	Substantial Math Strand
Second Language	Second Semester Proficiency	Second Semester Proficiency
General Education		
Tier I GE Requirements (150, 160, 170)	2- Tier 1 150 (INDV) 2- Tier 1 160 (TRAD)	2- Tier 1 150 (INDV) 2- Tier 1 160 (TRAD)

	0- Tier 1 170 (NATS)	0- Tier 1 170 (NATS)
Tier II GE Requirements (Arts, HUMS, INDV, NATS)	3 units -Tier II Arts 1-Tier II Humanities 1- Tier II Individuals and Societies 0-Tier II Natural Sciences	3 units -Tier II Arts 1-Tier II Humanities 1- Tier II Individuals and Societies 0-Tier II Natural Sciences
Pre-major? (Yes/No)	No	No
List any special requirements to declare or gain admission to this major (completion of specific coursework, minimum GPA, interview, application, etc.)	None	None
Minimum # of units required in the major (units counting towards major units and major GPA)	57	67
Minimum # of upper-division units required in the major (upper division units counting towards major GPA)	Varies by emphasis	Varies by emphasis
Minimum # of residency units to be completed in the major	18	18
Required supporting coursework (courses that do not count towards major units and major GPA, but are required for the major). Courses listed must include prefix, number, units, and title. Include any limits/restrictions in place/needed (house number limit, etc.). Provide email(s)/letter(s) of support from home department head(s) for courses not owned by your department.	<p>First Semester General Chemistry (4) CHEM 141, CHEM 143, CHEM 151, CHEM 161, CHEM 163</p> <p>Second Semester General Chemistry (4) CHEM 142, CHEM 144, CHEM 152, CHEM 162, CHEM 164</p> <p>Organic Chemistry (3) CHEM 214A, CHEM 246A</p> <p>Calculus I (3) MATH 122B, MATH 125</p>	<p>First Semester General Chemistry (4) CHEM 141, CHEM 143, CHEM 151, CHEM 161, CHEM 163</p> <p>Second Semester General Chemistry (4) CHEM 142, CHEM 144, CHEM 152, CHEM 162, CHEM 164</p> <p>---</p> <p>Advanced Chemistry, complete 3 units of the following</p> <p>CHEM 241A (3) Lectures in Organic Chemistry</p> <p>CHEM 242A (3) Honors Lectures in Organic Chemistry</p> <p>CHEM 246A (3) Lectures in Organic Chemistry</p> <p>ENVS 462 (3) Environmental and Soil Chemistry</p> <p>---</p> <p>Calculus I (3) MATH 122B, MATH 125</p>

	<p>Statistics (3) DATA/MATH 263, MATH 363, SBS 200, ENVS 275</p> <p>Intro Physics I PHYS 102 (3) Introductory Physics I</p> <p>Economics ECON 200 (3)</p>	<p>Statistics (3) ENVS 275, MATH 263, DATA/MATH 363, AREC 239</p> <p>Intro Physics I PHYS 102 (3) Introductory Physics I</p>
<p>Major requirements. List all major requirements including core and electives. If applicable, list the emphasis^ requirements. Courses listed count towards major units and major GPA. Courses listed must include prefix, number, units, and title. Mark new coursework (New). Include any limits/restrictions in place/needed (house number limit, etc.). Provide email(s)/letter(s) of support from home department head(s) for courses being added and are not owned by your department. Recommend ordering requirements in the same order as your advisement report.</p>	<p>ENVS 200 (3) Introduction to Soil Science</p> <p>ENVS 201 (1) Soils Laboratory</p> <p>ENVS 316 (3) Soil Fertility and Plant Nutrition</p> <p>PLS 240 (4) Plant Biology</p> <p>---</p> <p>Genetics, complete 4 units from the following</p> <p>BIOC 472 (3) Advanced Genetics for Teachers</p> <p>PLS/ACBS 312 (4) Animal and Plant Genetics</p> <p>ECOL 320 (4) Genetics</p> <p>---</p> <p>Plant Propagation, complete 3 units from the following</p> <p>PLS 330 (3) Principles and Techniques of Plant Propagation and Culture</p> <p>PLS 403 (3) Citrus Production</p> <p>---</p> <p>Entomology, Plant Pathology, or Weed Science, complete 3 units from the following:</p>	<p>ENVS 200 (3) Introduction to Soil Science</p> <p>ENVS 201 (1) Soils Laboratory</p> <p>ENVS 316 (3) Soil Fertility and Plant Nutrition</p> <p>PLS 240 (4) Plant Biology</p> <p>---</p> <p>Genetics, complete 4 units from the following</p> <p>PLS/ACBS 312 (4) Animal and Plant Genetics</p> <p>ECOL 320 (4) Genetics</p> <p>ECOL 320H (5) Genetics---</p> <p>Plant Propagation, complete 3 units from the following</p> <p>PLS 330 (3) Principles and Techniques of Plant Propagation and Culture</p> <p>PLS 397A (3) Yuma Production Systems</p> <p>---</p> <p>Insect Pest Management, complete 3 units from the following:</p> <p>ENTO/AGTM/BE 497C (3) Greenhouse Pest</p>

	<p>ENTO/AGTM BE 497C (3) Greenhouse Pest Management: Methods and Practice</p> <p>PLP/MIC 305 (3) Introductory Plant Pathology</p> <p>PLP/ACBS/ECOL/ENVS/ MIC/PLS 428R (3) Microbial Genetics</p> <p>---</p> <p>Applied Plant Physiology, PLS/BE 475A (3) Applied Plant Physiology</p> <p>---</p> <p>Colloquia, complete 1 unit from the following:</p> <p>ENVS 195B (1) Careers in Crop Production</p> <p>PLS 195A (1) How Will We Feed and Clothe 9-billion People in 2050?</p> <p>ASM 195A (1) Introduction to Agricultural Systems Management</p>	<p>Management: Methods and Practice</p> <p>ENTO 468 (3) Integrated Pest Management</p> <p>ENTO 300 (3) Insect Pest Management for Desert Cropping Systems</p> <p>---</p> <p>Plant Pathology PLP/MIC 305 (3) Introductory Plant Pathology</p> <p>---</p> <p>Applied Plant Physiology, complete 3 units from the following:</p> <p>PLS/BE 475A (3) Applied Plant Physiology</p> <p>PLS 360 (3) Plant Growth and Physiology</p> <p>---</p> <p>Soil Management, complete 3 units from the following:</p> <p>ENVS 300 (3) Soil Ecology of Sustainable Systems</p> <p>ASM/ENVS 404 (3) Irrigation Principles and Management</p> <p>---</p> <p>Colloquia, complete 1 unit from the following:</p> <p>PLS 195A (1) How Will We Feed and Clothe 9-billion People in 2050?</p> <p>ASM 195A (1) Introduction to Agricultural Systems Management</p>
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	<p>PLS 195B (1) The Science Underpinning GMOs and Organics</p> <p>---</p> <p>Communications, complete 3 units from the following:</p> <p>ENGL 308 (3) Technical Writing</p> <p>ENVS 408 (3) Scientific Writing for Environmental, Agricultural and Life Sciences</p> <p>COMM 312 (3) Applied Organizational Communication</p> <p>ENGL 307 (3) Business Writing</p> <p>ENVS 415 (3) Translating Environmental Science</p> <p>ALC 422 (3) Communicating Knowledge in Agriculture and the Life Sciences</p> <p>JOUR 305 (3) Science and the News</p> <p>JOUR 455 (3) Environmental Journalism</p> <p>JOUR 465 (3) Issues in Covering Science and the Environment</p> <p>JOUR 472 (3) Science Journalism</p> <p>SCI 401 (3) Science Communication</p> <p>---</p> <p>Capstone, complete 2 units from the following:</p>	<p>---</p> <p>Communications, complete 3 units from the following:</p> <p>ENVS 408 (3) Scientific Writing for Environmental, Agricultural and Life Sciences</p> <p>ENVS 415 (3) Translating Environmental Science</p> <p>ALC 422 (3) Communicating Knowledge in Agriculture and the Life Sciences</p> <p>---</p> <p>Career preparation, complete 3 units from the following. Maximum of 2 units of PLS 498 may count towards this requirement:</p>
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	PLS 498 (1-3) Senior Capstone ASM 490 (3) Case Studies for Agricultural Systems Management --- 27 units in emphasis area	(NEW) PLS 195C (1) Sustainable Plant Systems Colloquium PLS 498 (1-3) Senior Capstone ASM 499 (1-5) Independent Study --- Internship/Applied Course, complete 3 units from the following: ASM/ENVS/PLS/BE 392, 393, 399, 492, 493, 498H, or 499 27 units in Emphasis Areas
Internship, practicum, applied course requirements. (Yes/No). If yes, provide description.	No	This requirement is intended to expose students to activities directly applicable to commercial plant production and management, or to related research. Selected activities must be approved by the Sustainable Plant Systems Academic Advisors.
Senior thesis or senior project required (Yes/No). If yes, provide description.	No	No
Additional requirements (provide description)		
Minor (optional or required)	Optional	Optional

*May require Arizona Board of Regents (ABOR) approval

^Emphases are officially recognized sub-specializations within the discipline. [ABOR Policy 2-221 c. Academic Degree Programs Subspecializations](#) requires all undergraduate emphases within a major to share at least 40% curricular commonality across emphases (known as “major core”). Total units required for each emphasis must be equal.

VI. Peer institution comparison- describe how your modified major requirements are similar and different from major requirements of two peer institutions. Select peers from (in order of priority) [ABOR approved institutions](#), [AAU members](#), and/or other relevant institutions recognized in the field.

The current and proposed UA Sustainable Plant Systems BS core requirements were compared with similar programs at peer institutions: the University of Connecticut, the University of Illinois, Michigan State University, and The Ohio State University (see table below). Four, rather than two, peer institutions were included because no one institution offers degrees that are comparable to the UA *Sustainable Plant Systems* BA, and the accompanying emphasis areas of *Fresh Produce Safety*, *Agronomy*, *Urban Horticulture*, and *Controlled Environment Agriculture*. In the accompanying emphasis area Request for Curricular Changes Forms, the closest matches for individual emphasis areas are used. A second

challenge in making these comparison arises because of the relative portions of the core requirements versus areas of emphasis varies among programs. For example, Michigan State and Ohio State Universities have a relatively small group of core classes, and put a large percentage of requirements in emphasis areas, so their emphasis area requirements are included in our comparison.

Differences among programs include biology, where only UA and Michigan State University require a plant biology course. Like most peer programs UA requires advanced chemistry (Organic Chemistry or Environmental Soil and Water Chemistry). The US *Sustainable Plant Systems* BA currently requires economics. Economics would be removed in the proposed core revision. *Sustainable Plant Systems* at the University of Arizona is one of the few peer programs that requires students to complete first semester calculus.

As do most peer programs, we require a course in plant pathology, whereas other plant pest courses (weed science, entomology) are available in individual focal areas. Similarly, the University of Arizona places specialized plant production courses in emphasis areas rather than among core requirements. The positioning of these courses is, in part, due to the diverse emphasis areas offered in the *Sustainable Plant Systems* major. For example, students in the *Controlled Environment Agriculture* or *Fresh Produce Safety* focal areas have no need for courses in citrus production or arboriculture, nor do students in *Agronomy* require a course in hydroponic crop production. Therefore, fewer specialized courses appear in the University of Arizona *Sustainable Plant Systems* core than in many of the peer institution programs.

The University of Arizona now requires a single unit freshman colloquium and no senior capstone class. Our revised core curriculum will require a second one unit freshman colloquium (in the second 7½ week session) to introduce students to internships and similar experiential learning activities. This course will prepare students to identify and obtain internships and to establish connections between experiential learning activities and the senior capstone. The proposed SPS core curriculum will include an internship or similar activity to enhance students' career preparation. The senior capstone requirement, although not an addition to the SPS core requirements, will be altered to tie in with individual learning experiences. It will focus on written and oral communications based on student internships, and other job preparatory activities.

	Biology			Chemistry			Communications		Economics		Genetics		Math			Physics			Pests			Plant Science									
	General	Plant	Ecology	Gen I	Gen II	Organic	Oral	written			Algebra	calculus	Statistics			Entomology	Weed Sci	Plant Pathology		General	Plant physiology	Other	Agronomy	Horticulture	Crop improvement	General	Propagation	Small fruits	Trees	Vegetables	
UA current		x		x	x	x		x	x	x		x	x	x				x		x							x				
UA proposed		x		x	x	x		x		x		x	x	x				x		x							x				
U of Conn	xx			x				x			x		x						x	x						x					
U of Ill				x	x	x	x	xxxx	x			x	x			x	x	x		xx				x			x	x	x	x	x
Mich State		x		x		x			x	H	x		x			H		HL		x					x		x	H	x	H	
Ohio State	x		xA	x			x	xx		A	x		x			xAH	x	x		xAH	AH	A	H				HL				

H = Horticulture

A = Agronomy

L = Landscape

	General	Plant	Ecology	Gen I	Gen II	Organic	Oral	written	Economics	Genetics	Algebra	Calculus	Statistics	Physics/Soil Physics	Entomology	Plant Pathology	Weed Sci	Plant physiology	Agronomy	Horticulture	Crop improvement	Other	General	Propagation	Small fruits	Trees	Vegetables	Agronomic crops	Landscape	Turfgrass	Controlled Environment	General	Fertility/Chemistry	Biology/Chemistry/Physic	Capstone	Career development	Design and Management	Freshman Colloquium	Internship	Irrigation		
	Biology			Chemistry			Communications				Math						Pests			Plant Science					Plant production					Soil Science												
UA current		x		x	x	x		x	x	x		x	x	x		x		x						x								x	x		x					XX		
UA proposed		x		x	x	x		x		x		x	x	x		x		x						x							x	x								x	x	
U of Conn	xx			x				x			x		x					x				x	x								x											
U of Ill				x	x	x	x	XXXX	x			x	x		x	x	x	XX		x				x	x	x	x											x				
Mich State		x		x		x			x	AH	x	A	x	A	AH	AHL	A	x	A		x	A	A	x	H	x	H	H	H	HLL	L	H	AX	x	AA		AX	xL		x	L	
Ohio State	x		xA	x			x	XX		A	x		x		xAH	x	x	xAH	A	H		AH		HL				A	LL	L		x			x		LLL	x	x			
H = Horticulture																																										
A = Agronomy																																										
L = Landscape																																										

VII. Faculty impact– indicate if new faculty hires will be required to deliver the proposed modified/new curriculum.


No new faculty hires will be required to deliver the modified SPS curriculum.

VIII. Budgetary impact– indicate new resources needed and source of funding to implement the proposed changes. If reallocating resources, indicate where resources will be taken from and the impact this will have on students/faculty/program/unit.

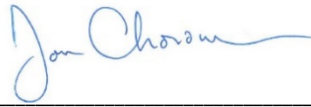
No new resources will be needed to implement the proposed SPS curriculum modifications.

IX. Required signatures


Managing unit administrator (print name and title): Dr. Kitt Farrell-Poe, Head of Biosystems Engineering Department

Managing administrator's signature:  Date: 10/16/19

Managing unit administrator (print name and title): Dr. Jon Chorover, Head of Environmental Science Department

Managing administrator's signature:  Date: 10/16/2019

Managing unit administrator (print name and title): Dr. Matt Jenks, Director of the School of Plant Sciences

Managing administrator's signature:  Date: 10/16/2019

Dean (print name): Michael Staten, Associate Dean

Dean's signature:  Date: 10/16/2019

Dean (print name): _____

Dean's signature: _____ Date: _____

Note: In some situations, signatures of more than one unit head and/or college dean may be required.

For use by Curricular Affairs:

Committee	Approval date
Academic Programs Subcommittee	
Undergraduate Council	
College Academic Administrators Council	
Arizona Board of Regents (if applicable)	

- Notify proposers of approval
- Upload proposal documents to relevant UAccess tables
- Notify ADVIP team and proposers

If ABOR approval required :

- If applicable, create approval memo
- Send memo to college/dept and acad_org listserv.
- If applicable, create new plan code (secondary too)
- If applicable, update emphases
- If applicable, add last admit term to prior plan code(s)
- Upload proposal docs to relevant UAccess table values
- Notify ADVIP team and proposers

Sustainable Plant Systems Major

Department/School	Class	Contact	Date Sent	Response Date
Animal & Comparative Biomedical Sciences	ACBS 411 ACBS 437 ACBS 456 MIC 430	spstock@email.arizona.edu	10/9/2019	11/14/2019
			11/13/2019	
Agricultural Education	AGTM 200 AGTM 330 AGTM 375 AGTM 350 AGTM 351 ASM 392, 3 ASM 404 ASM 499	rtorres@email.arizona.edu	10/9/2019	10/11/2019
American Indian Studies	AIS 441A	sakiestewa@email.arizona.edu	10/9/2019	10/14/2019
Agricultural & Resource Economics	AREC 239	garyt@ag.arizona.edu	10/9/2019	11/13/2019
			11/13/2019	
Chemistry & Biochemistry	BIOC 384	sanov@u.arizona.edu	10/9/2019	10/9/2019
Computer Science	CSC 250	proebsting@email.arizona.edu	10/9/2019	10/16/2019
Ecology & Evolutionary Biology	ECOL 414	worobey@email.arizona.edu	10/9/2019	11/26/2019
			11/13/2019	
Entomology	ENTO 300 ENTO 310 ENTO 468	brucet@ag.arizona.edu	10/9/2019	10/9/2019
School of Geography & Development	GEOG 330	liverman@email.arizona.edu	10/9/2019	10/10/2019
Landscape & Architecture Planning	LAR 350 LAR 420 LAR 423 PLG 408 SBE 201	ljohnson@email.arizona.edu	10/9/2019	10/10/2019
School of Natural Resources & the Environment	RNR 310 RNR 400 RNR 403 RNR417 RNR 483	squirrel@ag.arizona.edu	10/9/2019	10/9/2019

Use of ACBS course in the B.S. Sustainable Plant Systems curriculum

8 messages

Trent Patrick Rodriguez <trentrodriguez@email.arizona.edu>

Wed, Oct 9, 2019 at 10:09 AM

To: environmentalscience@email.arizona.edu

spstock@email.arizona.edu

Dear Dr. Stock,

The Department of Environmental Science is proposing significant changes to the Sustainable Plant Systems BS program. We would like to include one or more courses offered by your academic unit as subplan selectives and a subplan requirement in the major. Currently, there are 48 majors in the program, so the enrollment will not be significant. As part of the approval process we need to include a memorandum of support from you. We would be grateful if you would please review the attached information and sign the attached memorandum if you can. An electronic signature is fine. If you have any questions or concerns about our request, please let me know.

Once you have signed the memorandum, please return to me by email.

Sincerely,

Jon Chorover

Professor and Head

Department of Environmental Science

University of Arizona

Tucson, AZ 85721-0038

Phone: (520) 621-1646

Fax: (520) 621-1647

Email: chorover@email.arizona.edu



ACBS major selective request 10.4.2019.docx

24K

Environmental Science <EnvironmentalScience@email.arizona.edu>

Wed, Oct 9, 2019 at 10:30 AM

To: "Stock, S. Patricia - (spstock)" <spstock@email.arizona.edu>

Dear Dr. Stock,

The Department of Environmental Science is proposing significant changes to the Sustainable Plant Systems BS program. We would like to include one or more courses offered by your academic unit as subplan selectives and a subplan requirement in the major. Currently, there are 48 majors in the program, so the enrollment will not be significant. As part of the approval process we need to include a memorandum of support from you. We would be grateful if you would please review the attached information and sign the attached memorandum if you can. An electronic signature is fine. If you have any questions or concerns about our request, please let me know.

Once you have signed the memorandum, please return to me by email.

Sincerely,

Jon Chorover
Professor and Head
Department of Environmental Science
University of Arizona
Tucson, AZ 85721-0038
Phone: (520) 621-1646
Fax: (520) 621-1647
Email: chorover@email.arizona.edu<<mailto:chorover@email.arizona.edu>>

 **ACBS major selective request 10.4.2019.docx**
24K

Landeen, Kathleen A - (klandeen) <klandeen@email.arizona.edu>
To: "Stock, S. Patricia - (spstock)" <spstock@email.arizona.edu>
Cc: "Rodriguez, Trent Patrick - (trentrodriguez)" <trentrodriguez@email.arizona.edu>

Wed, Nov 13, 2019 at 10:16 AM

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 **ACBS major selective request 10.4.2019.docx**
24K

Stock, S. Patricia - (spstock) <spstock@email.arizona.edu>
To: "Landeen, Kathleen A - (klandeen)" <klandeen@email.arizona.edu>
Cc: "Rodriguez, Trent Patrick - (trentrodriguez)" <trentrodriguez@email.arizona.edu>

Wed, Nov 13, 2019 at 2:48 PM

Dear Kathleen:

We can allow the listing of these courses but with some limitations. Please see below:

ACBS 411 Agriculture, Environmental and Legal Issues; subplan option - Can be used but this will be reserved for all ACBS students first

ACBS 437 Food Safety Laws and Legal Policies; subplan option Can be used but this will be reserved for all ACBS students first

ACBS 456 Aquaculture; subplan option- Can be used but this will be reserved for all ACBS students first

MIC 430 Micro & Food; subplan requirement- This is in Food Safety Core and would like to reserve this for our students, being only available if our cap enrollment is not met.

If this still works for you, I am OK with signing the form. Just let me know.

Cheers,

Dr. S. Patricia Stock
Director and Professor, School of Animal and Comparative Biomedical Sciences
Weiler Endowed Chair for Excellence in Agriculture and Life Sciences
The University of Arizona
1117 E. Lowell St. P.O. Box 210090 Tucson, AZ 85721
Office: +1-520-621-0868 Fax:+1- 520-626-5602
e-mail: spstock@email.arizona.edu
URL: <https://acbs.cals.arizona.edu/people/s-patricia-stock>

Additional Appointments:
Professor, Department of Entomology
Professor, Honors College

Lab address: Marley Bldg. Room 718/720/724
1145 E. 4th Street, Tucson AZ 85721
Lab Phone (+1-520) 621-1317

From: Landeen, Kathleen A - (klandeen) <klandeen@email.arizona.edu>
Sent: Wednesday, November 13, 2019 10:16 AM
To: Stock, S. Patricia - (spstock) <spstock@email.arizona.edu>
Cc: Rodriguez, Trent Patrick - (trentrodriguez) <trentrodriguez@email.arizona.edu>
Subject: Use of ACBS course in the B.S. Sustainable Plant Systems curriculum

[Quoted text hidden]

 **winmail.dat**
35K

Landeen, Kathleen A - (klandeen) <klandeen@email.arizona.edu> Thu, Nov 14, 2019 at 9:11 AM
To: "Stock, S. Patricia - (spstock)" <spstock@email.arizona.edu>
Cc: "Rodriguez, Trent Patrick - (trentrodriguez)" <trentrodriguez@email.arizona.edu>, "Walworth, Jim - (jlw1)" <Walworth@ag.arizona.edu>

Good morning:

The limitations you described are reasonable. Thank you for allowing SPS students to use ACBS courses as allowed by seat availability. We look forward to receiving you signed form and will include a copy of this thread with the MEMO.

Kathleen Landeen

From: Stock, S. Patricia - (spstock) <spstock@email.arizona.edu>
Sent: Wednesday, November 13, 2019 2:48 PM
To: Landeen, Kathleen A - (klandeen) <klandeen@email.arizona.edu>
Cc: Rodriguez, Trent Patrick - (trentrodriguez) <trentrodriguez@email.arizona.edu>
Subject: Re: Use of ACBS course in the B.S. Sustainable Plant Systems curriculum

Dear Kathleen:

We can allow the listing of these courses but with some limitations. Please see below:

ACBS 411 Agriculture, Environmental and Legal Issues; subplan option - Can be used but this will be reserved for all ACBS students first

ACBS 437 Food Safety Laws and Legal Policies; subplan option Can be used but this will be reserved for all ACBS students first

ACBS 456 Aquaculture; subplan option- Can be used but this will be reserved for all ACBS students first

MIC 430 Micro & Food; subplan requirement- This is in Food Safety Core and would like to reserve this for our students, being only available if our cap enrollment is not met.

If this still works for you, I am OK with signing the form. Just let me know.

Cheers,

Dr. S. Patricia Stock
Director and Professor, School of Animal and Comparative Biomedical Sciences
Weiler Endowed Chair for Excellence in Agriculture and Life Sciences

The University of Arizona
1117 E. Lowell St. P.O. Box 210090 Tucson, AZ 85721
Office: +1-520-621-0868 Fax:+1- 520-626-5602
e-mail: spstock@email.arizona.edu<<mailto:spstock@email.arizona.edu>>
URL: <https://acbs.cals.arizona.edu/people/s-patricia-stock>

Additional Appointments:
Professor, Department of Entomology
Professor, Honors College

Lab address: Marley Bldg. Room 718/720/724
1145 E. 4th Street, Tucson AZ 85721
Lab Phone (+1-520) 621-1317

From: Landeen, Kathleen A - (klandeen) <klandeen@email.arizona.edu<<mailto:klandeen@email.arizona.edu>>>
Sent: Wednesday, November 13, 2019 10:16 AM
To: Stock, S. Patricia - (spstock) <spstock@email.arizona.edu<<mailto:spstock@email.arizona.edu>>>
Cc: Rodriguez, Trent Patrick - (trentrodriguez) <trentrodriguez@email.arizona.edu<<mailto:trentrodriguez@email.arizona.edu>>>

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Stock, S. Patricia - (spstock) <spstock@email.arizona.edu> Thu, Nov 14, 2019 at 11:01 AM
To: "Landeen, Kathleen A - (klandeen)" <klandeen@email.arizona.edu>
Cc: "Rodriguez, Trent Patrick - (trentrodriguez)" <trentrodriguez@email.arizona.edu>, "Walworth, Jim - (jlw1)" <Walworth@ag.arizona.edu>

Kathleen: please find attached signed memo.
Cheers,

Patricia

Dr. S. Patricia Stock
Director and Professor, School of Animal and Comparative Biomedical Sciences
Weiler Endowed Chair for Excellence in Agriculture and Life Sciences
The University of Arizona
1117 E. Lowell St. P.O. Box 210090 Tucson, AZ 85721
Office: +1-520-621-0868 Fax:+1- 520-626-5602
e-mail: spstock@email.arizona.edu
URL: <https://acbs.cals.arizona.edu/people/s-patricia-stock>


Additional Appointments:
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Professor, Honors College

Lab address: Marley Bldg. Room 718/720/724
1145 E. 4th Street, Tucson AZ 85721
Lab Phone (+1-520) 621-1317

From: Landeen, Kathleen A - (klandeen) <klandeen@email.arizona.edu>
Sent: Thursday, November 14, 2019 9:11 AM
To: Stock, S. Patricia - (spstock) <spstock@email.arizona.edu>
Cc: Rodriguez, Trent Patrick - (trentrodriguez) <trentrodriguez@email.arizona.edu>; Walworth, Jim - (jlw1) <Walworth@ag.arizona.edu>
Subject: RE: Use of ACBS course in the B.S. Sustainable Plant Systems curriculum

MEMO

DATE: October 4, 2019

TO: S. Patricia Stock, Professor and Director,
Animal & Comparative Biomedical Sciences 

FROM: Jon Chorover, Professor and Head, Environmental Science

RE: Use of ACBS course in the B.S. Sustainable Plant Systems curriculum

We approve the course(s) for use in the undergraduate curriculum for the **Sustainable Plant Systems** degree, SPSBS, as specified below:

ACBS 411 Agriculture, Environmental and Legal Issues; subplan option
ACBS 437 Food Safety Laws and Legal Policies; subplan option
ACBS 456 Aquaculture; subplan option
MIC 430 Micro & Food; subplan requirement

Managing Administrator: Patricia Stock, Ph.D.

Managing Administrator's Signature: _____ Date: _____

MEMO

DATE: October 4, 2019

TO: Robert Torres, Professor and Head,
Agricultural Education

FROM: Jon Chorover, Professor and Head, Environmental Science

RE: Use of AED course in the B.S. Sustainable Plant Systems curriculum

We approve the course(s) for use in the undergraduate curriculum for the **Sustainable Plant Systems** degree, SPSBS as specified below:

AGTM 200 Solar Photovoltaic Energy Systems with Applications to Agriculture; subplan option
AGTM 330 Turf and Landscape Technology; subplan option
AGTM 375 Agriculture Law; subplan option
AGTM 350 Applications in Agricultural Mechanics; subplan option
AGTM 351 Operations in Agricultural Mechanics; subplan option
ASM 392,393, 399, 492, 493, 498H, 499 Experiential Learning; core option
ASM 404 Irrigation Principles and Management (Yuma); core option
ASM 499 Independent Study; core requirement

Managing Administrator: Robert Torres, Professor and Head, AED

Managing Administrator's Signature



Date:

10/11/19

Department of Environmental
Science



428 Shantz Building, #38
1200 E. South Campus Drive
P.O. Box 210038
Tucson, AZ 85721-0038 USA
(520) 621-1606
FAX: (520) 621-1647
swes.cals.arizona.edu

MEMO

DATE: October 4, 2019

TO: Matthew Sakiestewa Gilbert, Professor and Head,
American Indian Studies

FROM: Jon Chorover, Professor and Head, Environmental Science

RE: Use of AIS course in the B.S. Sustainable Plant Systems curriculum

We approve the course(s) for use in the undergraduate curriculum for the **Sustainable Plant Systems** degree, SPSBS as specified below:

AIS 441A Natural Resource Management in Native Communities; subplan option

Managing Administrator: Matthew Sakiestewa Gilbert, Professor and Head, American Indian Studies

Managing Administrator's Signature: _____



Date: _____

10/16/2019

Department of Environmental
Science



428 Shantz Building, #38
1200 E. South Campus Drive
P.O. Box 210038
Tucson, AZ 85721-0038 USA
(520) 621-1606
FAX: (520) 621-1647
swes.cals.arizona.edu

MEMO

DATE: October 4, 2019

TO: Gary Thompson, Professor and Department Head,
Agricultural & Resource Economics

FROM: Jon Chorover, Professor and Head, Environmental Science

RE: Use of AREC course in the B.S. Sustainable Plant Systems curriculum

We approve the course(s) for use in the undergraduate curriculum for the **Sustainable Plant Systems** degree, SPSBS as specified below:

AREC 239 Introduction to Statistics and Data Analysis; core option

Managing Administrator: Gary Thompson, Professor and Department Head, Agricultural & Resource Economics

Managing Administrator's Signature: _____



Date: _____

11-13-19

MEMO

DATE: October 4, 2019

TO: Andrei Sanov, Professor and Head,
Chemistry & Biochemistry

FROM: Jon Chorover, Professor and Head, Environmental Science

RE: Use of BIOC course in the B.S. Sustainable Plant Systems curriculum

We approve the course(s) for use in the undergraduate curriculum for the **Sustainable Plant Systems** degree, SPSBS as specified below:

BIOC 384 Foundations in Biochemistry; subplan option

Managing Administrator: Andrei Sanov, Professor and Head, Chemistry & Biochemistry

Managing Administrator's Signature:  Date: 10/9/2019



Trent Patrick Rodriguez <trentrodriguez@email.arizona.edu>

Use of CSC course in the B.S. Sustainable Plant Systems curriculum

4 messages

Trent Patrick Rodriguez <trentrodriguez@email.arizona.edu>

Wed, Oct 9, 2019 at 10:16 AM

To: environmentalscience@email.arizona.edu

proebsting@email.arizona.edu

Dear Dr. Proebsting,

The Department of Environmental Science is proposing significant changes to the Sustainable Plant Systems BS program. We would like to include one or more courses offered by your academic unit as a requirement in the major. Currently, there are 48 majors in the program, so the enrollment will not be significant. As part of the approval process we need to include a memorandum of support from you. We would be grateful if you would please review the attached information and sign the attached memorandum if you can. An electronic signature is fine. If you have any questions or concerns about our request, please let me know.

Once you have signed the memorandum, please return to me by email.

Sincerely,

Jon Chorover

Professor and Head

Department of Environmental Science

University of Arizona

Tucson, AZ 85721-0038

Phone: (520) 621-1646

Fax: (520) 621-1647

Email: chorover@email.arizona.edu



CSC major selective request 10.4.2019.docx

24K

Trent Patrick Rodriguez <trentrodriguez@email.arizona.edu>

Wed, Oct 9, 2019 at 10:44 AM

To: environmentalscience@email.arizona.edu

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CSC major selective request 10.4.2019.docx

24K

Environmental Science <EnvironmentalScience@email.arizona.edu>

Wed, Oct 9, 2019 at 10:48 AM

To: "Proebsting, Todd A - (proebsting)" <proebsting@email.arizona.edu>

Dear Dr. Proebsting,

The Department of Environmental Science is proposing significant changes to the Sustainable Plant Systems BS program. We would like to include one or more courses offered by your academic unit as a requirement in the major. Currently, there are 48 majors in the program, so the enrollment will not be significant. As part of the approval process we need to include a memorandum of support from you. We would be grateful if you would please review the attached information and sign the attached memorandum if you can. An electronic signature is fine. If you have any questions or concerns about our request, please let me know.

Once you have signed the memorandum, please return to me by email.

Sincerely,

Jon Chorover
Professor and Head
Department of Environmental Science
University of Arizona
Tucson, AZ 85721-0038
Phone: (520) 621-1646
Fax: (520) 621-1647
Email: chorover@email.arizona.edu<<mailto:chorover@email.arizona.edu>>

 **CSC major selective request 10.4.2019.docx**
24K

Environmental Science <EnvironmentalScience@email.arizona.edu>
To: "Rodriguez, Trent Patrick - (trentrodriguez)" <trentrodriguez@email.arizona.edu>

Wed, Nov 13, 2019 at 10:08 AM

From: Todd Proebsting <proebsting@cs.arizona.edu>
Sent: Wednesday, October 16, 2019 11:15 AM
To: Environmental Science <EnvironmentalScience@email.arizona.edu>
Subject: Re: Use of CSC course in the B.S. Sustainable Plant Systems curriculum

Jon,
We can certainly handle more students in CSC 250. We should note that Computer Science is very likely to revisit the content of 250 in the next year or two to better serve our constituents. Are you OK with that uncertainty?

Cheers,
Todd

[Quoted text hidden]

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MEMO

DATE: October 4, 2019

TO: Michael Worobey, Professor and Head, Ecology & Evolutionary Biology

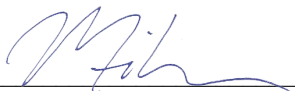
FROM: Jon Chorover, Professor and Head, Environmental Science

RE: Use of ECOL course in the B.S. Sustainable Plant Systems curriculum

We approve the course(s) for use in the undergraduate curriculum for the **Sustainable Plant Systems** degree, SPSBS as specified below:

ECOL 414 Plants of the Desert; subplan option

Managing Administrator: Michael Worobey, Professor and Head, EEB

Managing Administrator's Signature:  Date: 11/26/2019

MEMO

DATE: **October 9, 2019**

TO: **Jon Chorover, Professor and Head, Environmental Science**

FROM: **Bruce Tabashnik, Regents' Professor and Head,
Entomology**

RE: **Use of ENTO courses in the B.S. Sustainable Plant Systems curriculum**

We approve the courses for use in the undergraduate curriculum for the **Sustainable Plant Systems** degree, SPSBS as specified below:

ENTO 300 Insect Pest Management for Desert Cropping Systems; core option

ENTO 468 Integrated Pest Management; core option

ENTO 310 Living in Symbiosis; subplan option

Managing Administrator: Bruce Tabashnik, Regents' Professor and Head, Entomology

Managing Administrator's Signature:



Date: 10-9-19

MEMO

DATE: October 4, 2019

TO: Diana Liverman, Director & Regents' Professor,
School of Geography and Development

FROM: Jon Chorover, Professor and Head, Environmental Science

RE: Use of GEOG course in the B.S. Sustainable Plant Systems curriculum

We approve the course(s) for use in the undergraduate curriculum for the **Sustainable Plant Systems** degree, SPSBS as specified below:

GEOG 330 Introduction to Remote Sensing; subplan option

Managing Administrator: Diana Liverman, Director & Regents' Professor, SGD



October 10, 2019

Managing Administrator's Signature: _____ Date: _____

MEMO

DATE: October 4, 2019

TO: Lauri Johnson, Professor and Director,
Landscape Architecture & Planning

FROM: Jon Chorover, Professor and Head, Environmental Science

RE: Use of LAR course in the B.S. Sustainable Plant Systems curriculum

We approve the course(s) for use in the undergraduate curriculum for the **Sustainable Plant Systems** degree, SPSBS as specified below:

LAR 350 Parks and Urban Public Spaces; subplan option
LAR 420 Plant Materials; subplan requirement
LAR 423 Landscape Ecology; subplan option
PLG 408 Planning for Urban Resilience; subplan option
SBE 201 Sustainable Design and Planning; subplan option

Managing Administrator: Lauri Johnson, Professor and Director, Landscape Architecture & Planning

Managing Administrator's Signature:  _____ Date: 10/10/2019

MEMO

DATE: October 4, 2019

TO: John Koprowski, Professor and Director,
School of Natural Resources and the Environment

FROM: Jon Chorover, Professor and Head, Environmental Science

RE: Use of RNR course in the B.S. Sustainable Plant Systems curriculum

We approve the course(s) for use in the undergraduate curriculum for the **Sustainable Plant Systems** degree, SPSBS as specified below:

RNR 310 Agave, Cacti, and Other Succulents of Southern Arizona; subplan option
RNR 400 Noxious Invasive Plants of Arizona; subplan option
RNR 403 Applications of Geographic Information Systems; subplan option
RNR 417 Geographic Information Systems for Natural and Social Sciences; subplan option
RNR 483 Geographic Applications of Remote Sensing; subplan option

Managing Administrator: John Koprowski, Professor and Director, SNRE

Managing Administrator's Signature:



Date: 9 October 2019