

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 proposed Sustainable Plant Systems (SPS) BS degree *Agronomy* emphasis area changes include requiring moving ENVS 431 *Soil Genesis, Morphology, and Classification* from required courses to the list of selectives. This requirement has been supplanted by inclusion of a more applicable soil science course, ENVS 300 *Soil Ecology*, in the Sustainable Plant Systems core requirements. A choice of genetics or plant breeding will be required, as these are subjects whose impact field crop production is growing rapidly. A weed science class has also been added. Weed control will be a mounting challenge as weeds develop resistance to herbicides, and control options become more limited. The list of selectives has been updated and focused more on subjects directly relevant to field crop production.

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
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Major, emphasis (if applicable) and degree *	UGRD.UAGSC.SPSBS.AGRO N Agronomy	UGRD.UAGSC.SPSBS.AGRO N Agronomy
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) 0- Tier 1 170 (NATS)	2- Tier 1 150 (INDV) 2- Tier 1 160 (TRAD) 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)	33	54
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.	Supporting Coursework: refer to SPSBS Core modification request.	Supporting Coursework: refer to SPSBS Core modification request.

<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>Core: refer to the SPS BS Core modification request.</p> <p>---</p> <p>Complete 12 units from the following. . Choose only 1 course from ENV5 420 or ENV5 470, ENV5 431R or ENV5 300.</p> <p>ENV5 420 (3) Environmental Physics</p> <p>ENV5 470 (3) Soil Physics</p> <p>ENV5 401 (3) Sustainable Management of Arid Lands & Salt-Affected Soils</p> <p>ENV5 431R (3) Soil Genesis and Classification</p> <p>PLS 306 (3) Crop Science and Production</p> <p>ENV5 300 (3) Soil Ecology of Sustainable Systems</p> <p>---</p> <p>Complete 15 units from the following</p> <p>BE 120 (3) Basic Computer Skills for Office Applications</p> <p>ENV5 195A (1) Careers in Environmental Science</p> <p>PLS 217 (3) Introduction to Hydroponics & Controlled Environment Agriculture</p> <p>RNR 230L (1) Field Botany Laboratory</p> <p>RNR 230R (2) Field Botany</p> <p>ENV5, PLP, PLS 299 (1 - 3) Independent Study</p> <p>ENTO 300 (3) Insect Pest Management for Desert Cropping Systems</p>	<p>Core: refer to the SPS BS Core modification request.</p> <p>PLS 306 (3) Crop Science and Production</p> <p>ENV5 401 (3) Sustainable Management of Arid Lands & Salt-Affected Soils</p> <p>---</p> <p>Complete 3 units from the following:</p> <p>ENV5 420 (3) Environmental Physics</p> <p>ENV5 470 (3) Soil Physics</p> <p>---</p> <p>Complete 3 units from the following:</p> <p>PLS415 (3) Plant Breeding and Genetics</p> <p>PLS 340 (3) Introduction to Biotechnology</p> <p>PLS 424R (3) Plant Biotechnology</p> <p>PLS 449A (3) Plant Genetics and Genomics</p> <p>---</p> <p>Complete 3 units from the following:</p> <p>PLS 300 (3) Applied Weed Science</p> <p>RNR 400 (3) Noxious Invasive Plants of Arizona</p> <p>---</p> <p>Complete 15 units from the following. Maximum of 3 units from RNR 403, RNR 417, RNR 483, and WSM 430 may count towards this requirement:</p>
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PLP 329A (3) Microbial Diversity	ACBS 411 (3) Agriculture, Environmental and Legal Issues
PLS 340 (3) Introduction to Biotechnology	AGTM 350 (3) Applications in Agricultural Mechanics
PLS 359 (3) Plant Cell Structure and Function	AGTM 351 (3) Operations in Agricultural Mechanics
PLS 360 (3) Plant Growth and Physiology	AGTM200 (3) Solar Photovoltaic Energy Systems with Applications to Agriculture
ENVS 397S (3) Sustainability Workshop I: Students for Sustainability	AIS 441A (3) Natural Resource Management in Native Communities
ENVS, PLP, PLS 399 (1 - 3) Independent Study	BE 385 (3) Precision Observation with Drones
PLS 405 (3) Weed Science	BIOC 384 (3) Foundations in Biochemistry
PLS 424L (2) Plant Biotechnology Laboratory	ENTO 436 (3) Agro-ecology
PLS 424R (3) Plant Biotechnology	ENTO 310 (3) Living in Symbiosis
PLP 427R (3) General Mycology	ENVS 340 (3) Environmental Chemistry
PLP 428L (2) Microbial Genetics Laboratory	ENVS 462 (3) Environmental Soil and Water Chemistry
PLP 428R (3) Microbial Genetics	ENVS 410 (3) Microbial Biogeochemistry and Global Change
AIS 431A (3) Traditional Ecological Knowledge	ENVS 431R (3) Soil Genesis and Classification
ENTO 436 (3) Agro-ecology	PLP 427R (3) General Mycology
ENVS 454 (3) Water Harvesting	PLS 359 (3) Plant Cell Structure & Function
PLS 480 (3) Medicinal Plants	PLS 360 (3) Plant Growth and Physiology
BE 483 (3) Controlled Environment Systems	PLS 333 (3) General Virology
REM 490 (3) Remote Sensing for the Study of Planet Earth	
PLS 491 (1 - 8) Preceptorship	

	<p>ENVS, PLS 492 (1 – 6) Directed Research</p> <p>ENVS, PLS 493 (1 – 6) Internship</p> <p>ENTO 497C (3) Greenhouse Pest Management: Methods and Practice</p> <p>GEOG 497F (2 – 6) Community and School Garden Workshop</p> <p>---</p> <p>ENVS, PLP, PLS 499 (1 – 5) Independent Study</p>	<p>RNR 403 (3) Applications of Geographic Information Systems</p> <p>RNR 417 (3) Geographic Information Systems for Natural and Social Sciences</p> <p>RNR 483 (3) Geographic Applications of Remote Sensing</p> <p>WSM 330 (3) Introduction to Remote Sensing</p> <p>---</p>
<p>Internship, practicum, applied course requirements. (Yes/No). If yes, provide description.</p>	No	<p>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.</p>
<p>Senior thesis or senior project required (Yes/No). If yes, provide description.</p>	No	No
<p>Additional requirements (provide description) Agronomy emphasis area</p>		
<p>Minor (optional or required)</p>	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 The Ohio State University and Michigan State University. Ohio State *Sustainable Plant Systems, Agronomy* emphasis area has a similar structure to the University of Arizona’s, i.e. a Sustainable Plant Systems BS with an Agronomy focal area, whereas at Michigan State University Agronomy is a major (Agronomic Sciences) without accompanying focal areas.

Michigan State *Agronomic Sciences* requires a course in crop science, weed science, plant pathology, plant genetics, entomology, plant physiology, biotechnology, cropping systems, computer applications, and several courses in soil science: introductory soil science, soil chemistry, physics, biology, fertility, and management. Students must complete 31 to 32 units from a lengthy list of selectives.

The Ohio State University core *Sustainable Plant Systems* curriculum and *Agronomy* emphasis area together require students to complete courses in data analysis, plant ecology, plant physiology, agronomy, plant genetics, soil science, weed science, entomology, plant pathology, pest management, and five additional courses in crop production and crop production systems.

The proposed University of Arizona *Sustainable Plant Systems, Agronomy* emphasis area requires students to complete the Sustainable Plant Systems core, including plant biology, physiology, genetics, plant production, introductory soil science, soil fertility, soil ecology, plant pathology, and pest management. In the Agronomy emphasis area students complete a course in crop production, advanced physics, weed science, and arid land management, as well as 12 units of selectives. Selective choices include law, agricultural mechanics, drone technology, advanced chemistry, soil genesis, plant physiology, geographical information systems (GIS), virology, mycology, agro-ecology, or natural resource management.

Overall, the Michigan State *Agronomic Sciences* BS has a stronger soil science focus (six courses required) than the University of Arizona degree (four soil courses), and less application classes (e.g. GIS, drone technology, agricultural mechanics). The University of Arizona *Agronomy* emphasis area also provides more offerings in agricultural pest ecology and management than Michigan State University. In contrast, The Ohio State University *Agronomy* emphasis area requires less soil science (one course) and application classes, but is heavier in plant and pest-oriented classes. The University of Arizona program offers a balance between soil and plant courses, and provides more hands-on opportunities for students than peer institutions.

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: *K. L. Farrell-Poe* Date: 10/16/19

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

Managing administrator's signature: *Jon Chorover* 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: *Matt Jenks* Date: 10/16/2019

Dean (print name): Michael Staten, Associate Dean

Dean's signature: *Michael Staten* 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

[Quoted text hidden]

 **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>
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Cheers,

Dr. S. Patricia Stock
Director and Professor, School of Animal and Comparative Biomedical Sciences
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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>

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Lab address: Marley Bldg. Room 718/720/724
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Cc: Rodriguez, Trent Patrick - (trentrodriguez) <trentrodriguez@email.arizona.edu>

[Quoted text hidden]

 **winmail.dat**
24K

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>


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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

[Quoted text hidden]



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]

 **winmail.dat**
15K

MEMO

DATE: October 4, 2019

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

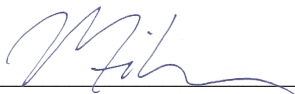
FROM: Jon Chorover, Professor and Head, Environmental Science

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