

Update

Program (UnivSt) - University Studies: Meteorology/Climatology AA.1506

Program Catalog Summary: University Studies – 18 Unit Emphasis: SC Program: AA.1506

Many universities offer an Atmospheric Science degree or option and this academic plan is intended to support the transfer student interested in that bachelor's degree. Courses in this plan produce a foundation to transfer in such studies as weather and climate challenges that face society now and into the future.

The Learning Outcomes correspond to the Institutional Student Learning Outcomes.

Complete the following 10 units:

ESCI 14 Meteorology (4)

ESCI 17 Earth System Science (3) ESCI 18 Global Climate (3)

Choose the remaining 8 units from the following list to include at least one additional science course:

Related Science Courses:

AGNR 60 Environmental Science (3)

AGNR 61 Environmental Science Lab (1)

ASTR 1 Astronomy (3)

CHEM 1B General Chemistry (5)

ESCI 10 Environmental Geology (4)

ESCI 15 Oceanography (4)

NHIS 15 Natural History (3)

PHYS 2B General College Physics (4)

Courses from supporting disciplines:

AGNR 1 Introduction to Natural Resources (3)

AGNR 83 Introduction to Global Positioning Systems (1)

CIS 1 Computer Literacy Workshop (3)

GEOG 10 Introduction to Geographic Information Systems (3)

MATH 3B Calculus 3A (5)

MATH 14 Introduction to Statistics (4)

Fall 2018

Who completed this form: Program Review Committee

Other factors for consideration: This is a University Studies degree that is reviewed by the Program Review Committee and forwarded to program faculty and counselors for input.

****TO BE COMPLETED BY THE PROGRAM REVIEW COMMITTEE** PRC Action:** PRC recommends the program continue with qualification fall was offered with the new unit change and has 22 enrollments. We will re-evaluate the program in 2019. Unless specific actions and related outcomes are achieved based on our below recommendations and others determined by the program faculty, this University Studies degree will be tagged for discontinuance.

The program shows only one degree earned in 2012/13. There are three "core" courses but only two have been offered since 2011. The four-year average success rates are 64.64% well below the Institution-set Standard of 70%. Retention rates are strong with a four-year average of 85.94%. However retention rates show a significant decline in 2014/15 and 2015/16. Enrollments are not favorable with a four-year average of 10.75 students per section. However, a reduction in the number of sections of ESCI 18 improved the per section student count. The SLO's need to be to the ISLO's, which serve as the program learning outcomes for the University and General Studies degrees.

The PRC recommends the following:

1. The faculty map the SLO's to ISLO's, which serve as the program learning outcomes for the University and General Studies degrees.
2. The faculty work with Marketing and others to create program promotions and specifically educate Counselors about the merits of this program related to student degree attainment.
3. The faculty review enrollment trends and work on increasing (where appropriate to curriculum, SLO's and so forth) the student enrollments per section.
4. The faculty work to improve the success rates.

Program faculty response: In response to the PRC recommendation and Sue Loring's comments below, Randy Reed responded on 12.03.18:

Sorry for being slow on this and thanks for the prompt. I've been working on several projects ahead of the break and while this was one of them, I was unable to write a reply until over the break. I wanted to revisit my reply and see if I was making any sense and after a few alterations, mostly, I think I was, so here goes...

I think what I can start with is that I am modifying several Earth Science tracks and one is the Meteorology AA. I've been meeting with Iva since early October and think I/we have it all sorted out. I don't think the current Shasta College Meteorology AA is perfect by any means. The degree needed revision and flexibility and so that's been my effort since July and the focus of my chats with Iva since October. I feel pretty excited about the changes and can't wait to share!

And while I've been protective/defensive of my programs over this past two semesters (this is nothing new... I've been that way since I wrote them up 12 years ago!), I've had to sit down and really look at what I have and determine what's reasonable given the CSU and UC systems now with an eye on the labor markets as well as. While I have regularly done the latter and have watched Earth Science careers move to the forefront over the last decade leading in growth, demand and salary among all sciences, I've not kept pace with the CSU's and UCs over that same time frame. And they have changed quite a bit.

There is a basic problem, though: should we have highly generalized "catch all" degrees or should there be degrees on the books that are more narrow in title and scope. To Sue's points, and thank you Sue for spending some time on this, I would suggest the Natural Sciences degrees (AA/AS) are something of an "assembly line" where there are all kinds of parts are available to build a "Natural Science" degree. In the end, one may have a working, functional degree or one may not. And, if a student is looking to go into atmospheric sciences and jumps into the Natural Science AA, following a "physics transfer" path is fairly useful except that it largely excludes any courses in atmospheric sciences!

So think about that for a moment... A student want's to be a specific science major but can actually only take very few courses, and often just one, that defines their major.

Most science paths require the following:

-1 year of chemistry (10 units IF prepared to enter CHEM 1A, and most are notso it is common to tack on at least 4 more units)

-1 year of physics (8 units if they have the appropriate math background (higher than MATH 102) and most do not. Or, if their transfer school requires calculus-based physics, they need to start MATH 3A and most are not ready to do so and commonly that tacks on another 4 to 10 units here.)

-37 to 39 GE credits (3 or 4 units of the above can count as the physical science' 3 units count as MATH)

Taking the basic values 10 CHEM + 8 PHYS total units toward the degrees is at least 14 to 18 units as one counts as a Physical Science. Again, that's only if they are CHEM/MATH prepped.

Now San Jose State wants 3 semesters of calculus (add 4), 3 semesters of physics (add 4) though they only want 1 semester of chemistry (drop 5) and now, to follow a physics transfer here at Shasta, we are at 17 to 21 for the transfer prep.... And after all of that they have not had one atmospheric science course!!!! San Jose has TWO to FOUR lower division undergraduate courses depending on emphasis in their Bachelor's path so why shouldn't we? And they are not encouraging the student to clear all CHEM and all Physics ahead of transfer so why should we? (They do encourage all MATH be cleared by 3rd semester). San Jose State does describe the same lower division Meteorology and Climate classes we have, among other courses depending on the emphasis of the BS, so why wouldn't we use the Meteorology track we have to support a transfer student into this program?

So my point is that following the Physics transfer within the Natural Science degree is similar but not quite like having them in the Meteorology degree... why wouldn't we put them in a degree path that is designed for the Meteorology transfer? The Natural Science degree requires an appropriate degree plan be developed for this path and that's doable, but why bother if, academically, a more appropriate degree already exists? And for a transferring student into such a program, what would carry more significance: the Natural Science degree or the Meteorology degree? I can add this: the Meteorology AA, even in its current state, is an employable degree once earned and the Natural Science degree is not. So why wouldn't we place them on a path that has both: the most appropriate academic and career support we can offer them?

Sorry for the length and I hope this makes sense. I am concerned for science students in the Earth Sciences (Oceanography, Geology, Atmospheric) and even for the Natural Resources students because in several of these areas there is strong interest among students if not high completion numbers. A generic science degree, though capable of having specific degree plans emerge through appropriate counseling, does not allow students to take much more than one (none in the example above) course in their chosen degree field among their lower division plans, does not award them an employable degree, does not carry the weight of a more specific degree recognizable by their transfer department, may or may not assemble into an appropriate suite of classes for the student's transfer needs, and may fail the student in terms of a lower division experience that may very well determine their transfer institution and/or choice of bachelor's degrees when looking to transfer.

Thanks for "listening" and I look forward to future chats.

Counselor response: From Sue Loring 10.29.18: I can accept the recommendation, although I have concerns about both the recommendation and about the program. My understanding of the purpose of University Studies degrees is that they are geared toward meeting requirements for transferring into related bachelor degree programs. There are only a few bachelor level programs in Meteorology or Atmospheric Science at a CSU or UC. The requirements for the degree in Meteorology at San Jose State University do not align well with the requirements for this program. Students would be better prepared for San Jose's Meteorology program if they completed Shasta College's AS-T in Physics (and added ESCI 14 to it), or if they completed our University Studies – Natural Sciences degree (with proper course planning) than if they completed our University Studies – Meteorology degree. The same is true for the Atmospheric Science degree at UC Davis and the Environmental Science: Atmosphere and Climate degree at Chico State.

So, I question the need for this program. As noted in the program review, not many students are obtaining the degree and those who may be interested in it could easily satisfy the requirements for the University Studies – Natural Science degree and, with proper planning, be better prepared to transfer into a meteorology/atmospheric science major at a university. Having said this, I'd just like to add that I understand the faculty interest in offering the degree, and I know that all of the courses in the program are high quality courses. I'm not questioning the education students receive in the program, just the need to package this set of classes into a University Studies degree at Shasta College.

This message was forwarded on 10.30.18 with permission to Randy Reed (faculty) and Carlos Reyes (dean).

From Carolyn Borg 10.26.18: I can support the continuance with qualification. My suggestion is that a scheduling plan be communicated to counselors – it's better to offer a course every other year than schedule it every year and have to cancel every other year. For example, BOT 1 was offered every spring semester of even numbered years, that's easy to note that in the catalog and funnel the appropriate students to the appropriate major during their two-year path. I don't know, maybe ESCI 14 has enough enrollment to make it yearly.

Date summary sent to College Council: 01/08/2019

PROGRAM AWARDS

Award Type	Program Type	2012-13	2013-14	2014-15	2015-16	2016-17
Associate or Arts Degree	University Studies: Meteorology/Climatology	72	73	68	62	64
Grand Total		72	73	68	62	64

COURSE STATISTICS

		Academic Year				
		2013-14	2014-15	2015-16	2016-17	2017-18
AGNR-1	# of Sections	2	2	1	1	2
	Enrollment	49	47	20	23	44
	FTES	7.7	7.5	3.0	3.2	6.5
	FTEF	0.57	0.57	0.28	0.28	0.28
	WSCH	230	225	90	95	193
	Avg Enrl/Section	25	24	20	23	22
	Avg FTES FTEF	13.54	13.24	10.59	11.19	14.12
	Avg WSCH FTEF	406	397	318	335	424
AGNR-60	# of Sections	16	11	11	7	10
	Enrollment	367	267	288	257	254
	FTES	34.4	26.8	26.6	24.1	23.9
	FTEF	1.97	1.60	1.60	1.40	1.40
	WSCH	1,049	819	813	738	728
	Avg Enrl/Section	23	24	26	37	25
	Avg FTES FTEF	15.40	16.00	16.13	17.21	16.00
	Avg WSCH FTEF	471	489	493	527	488
AGNR-61	# of Sections	3	2	2	2	2
	Enrollment	64	47	50	46	57
	FTES	5.7	4.4	4.1	4.1	5.5
	FTEF	0.45	0.30	0.30	0.30	0.30
	WSCH	171	132	123	123	165
	Avg Enrl/Section	21	24	25	23	29
	Avg FTES FTEF	12.67	14.67	13.67	13.67	18.33
	Avg WSCH FTEF	380	440	410	410	550
AGNR-83	# of Sections	1				
	Enrollment	20				
	FTES	1.2				
	FTEF	0.11				
	WSCH	37				
	Avg Enrl/Section	20				
	Avg FTES FTEF	11.08				
	Avg WSCH FTEF	342				
ASTR-1	# of Sections	7	6	6	2	5
	Enrollment	417	297	282	159	107
	FTES	39.9	26.8	25.2	13.9	10.0
	FTEF	1.40	1.20	1.20	0.40	0.40
	WSCH	1,198	803	755	423	304
	Avg Enrl/Section	60	50	47	80	21
	Avg FTES FTEF	28.17	22.25	20.83	34.75	20.50
	Avg WSCH FTEF	856	669	629	1,058	625
CHEM-1B	# of Sections	4	4	4	4	3
	Enrollment	89	91	69	85	71
	FTES	20.5	18.2	16.3	19.1	15.4

	FTEF	1.27	1.07	1.07	1.07	0.65
	WSCH	616	545	490	574	462
	Avg Enrl/Section	22	23	17	21	24
	Avg FTES FTEF	17.36	19.41	17.43	22.79	27.40
	Avg WSCH FTEF	521	582	523	684	822
CIS-1	# of Sections	32	37	40	54	52
	Enrollment	987	1,090	1,121	1,346	1,410
	FTES	99.7	118.3	109.4	136.6	143.1
	FTEF	6.78	8.95	8.23	8.23	8.47
	WSCH	3,335	4,074	4,087	4,935	5,133
	Avg Enrl/Section	31	29	28	25	27
	Avg FTES FTEF	14.69	13.18	12.05	12.50	12.73
	Avg WSCH FTEF	493	456	464	483	500
ESCI-10	# of Sections			4		1
	Enrollment			20		9
	FTES			2.0		1.8
	FTEF			0.35		0.35
	WSCH			60		54
	Avg Enrl/Section			5		9
	Avg FTES FTEF			2.86		5.14
	Avg WSCH FTEF			86		154
ESCI-15	# of Sections	2	2	2	2	2
	Enrollment	67	76	70	76	69
	FTES	12.2	13.4	13.4	13.6	12.6
	FTEF	0.70	0.70	0.70	0.70	0.70
	WSCH	366	402	402	408	378
	Avg Enrl/Section	34	38	35	38	35
	Avg FTES FTEF	17.43	19.14	19.14	19.43	18.00
	Avg WSCH FTEF	523	574	574	583	540
GEOG-10	# of Sections		1	2	1	1
	Enrollment		26	25	19	17
	FTES		1.8	3.8	2.5	2.8
	FTEF		0.28	0.57	0.28	0.28
	WSCH		93	115	75	85
	Avg Enrl/Section		26	13	19	17
	Avg FTES FTEF		6.35	6.76	8.82	9.99
	Avg WSCH FTEF		328	203	265	300
MATH-3B	# of Sections	4	4	4	3	3
	Enrollment	143	111	100	98	96
	FTES	18.9	15.5	17.2	17.9	15.2
	FTEF	1.07	1.07	1.33	1.00	1.00
	WSCH	568	464	517	536	457
	Avg Enrl/Section	36	28	25	33	32
	Avg FTES FTEF	17.75	14.50	12.93	17.87	15.23
	Avg WSCH FTEF	532	435	388	536	457
MATH-14	# of Sections	37	43	42	44	48
	Enrollment	1,244	1,281	1,235	1,294	1,468

	FTES	154.3	165.2	163.7	169.2	191.5
	FTEF	8.55	9.88	9.61	10.15	11.12
	WSCH	4,652	4,985	4,945	5,111	5,738
	Avg Enrl/Section	34	30	29	29	31
	Avg FTES FTEF	17.43	15.83	16.54	15.89	16.33
	Avg WSCH FTEF	526	478	500	481	495
NHIS-15	# of Sections	5	5	4	5	4
	Enrollment	59	58	24	55	57
	FTES	5.5	5.4	2.2	5.4	5.7
	FTEF	0.40	0.40	0.20	0.40	0.37
	WSCH	165	162	66	162	174
	Avg Enrl/Section	12	12	6	11	14
	Avg FTES FTEF	11.25	7.75	3.50	7.00	10.00
	Avg WSCH FTEF	338	233	105	210	308
PHYS-2B	# of Sections	2	2	2	2	2
	Enrollment	35	38	31	30	33
	FTES	7.0	7.4	5.4	6.0	6.6
	FTEF	0.50	0.50	0.50	0.50	0.50
	WSCH	210	222	162	180	198
	Avg Enrl/Section	18	19	16	15	17
	Avg FTES FTEF	17.24	18.19	14.95	13.14	16.29
	Avg WSCH FTEF	517	546	449	394	489
Grand Total	# of Sections	115	119	124	127	135
	Enrollment	3,021	2,961	2,918	3,102	3,282
	FTES	407.1	410.6	392.4	415.5	440.7
	FTEF	23.75	26.52	25.94	24.71	25.82
	WSCH	12,597	12,926	12,625	13,360	14,069
	Avg Enrl/Section	26	25	24	24	24
	Avg FTES FTEF	16.79	15.17	14.63	15.21	15.21
	Avg WSCH FTEF	521	479	475	496	499