SJSU Annual Program Assessment Form
Academic Year 2014-2015

Department: Meteorology & Climate Science
Program: BS Meteorology, BS Meteorology concentration Climate Science
College: Science
Website: www.sjsu.edu/meteorology
X Check here if your website addresses the University Learning Goals.
www.sjsu.edu/meteorology/undergraduates/assessment/index.html
Program Accreditation (if any): None
Contact Person and Email: Prof. Alison Bridger, Alison.bridger@sjsu.edu
Date of Report: 5/27/15

Part A

1. **List of Program Learning Outcomes (PLOs)**
   No changes since last year.
2. **Map of PLOs to University Learning Goals (ULGs)**
   No changes since last year.
3. **Alignment – Matrix of PLOs to Courses**
   No changes since last year.
4. **Planning – Assessment Schedule**
   No changes since last year.
5. **Student Experience**
   No changes since last year.

Part B

6. **Graduation Rates for Total, Non URM and URM students (per program and degree)**

	First-Time Freshmen				Undergraduate Transfer				New Credential				First-Time Graduate			
	Fall 2008 Cohort: 6-Year Graduation Rate				Fall 2011 Cohort: 3-Year Graduation Rate				Fall 2011 Cohort: 3-Year Graduation Rate				Fall 2011 Cohort: 3-Year Graduation Rate			
	Program Cohort Size	Program Grad Rate	College Average Grad Rate - All Students Who Entered This College	University Average Grad Rate - All Students Who Entered the University	Program Cohort Size	Program Grad Rate	College Average Grad Rate - All Students Who Entered This College	University Average Grad Rate - All Students Who Entered the University	Program Cohort Size	Program Grad Rate	College Average Grad Rate - All Students Who Entered This College	University Average Grad Rate - All Students Who Entered the University	Program Cohort Size	Program Grad Rate	College Average Grad Rate - All Students Who Entered This College	University Average Grad Rate - All Students Who Entered the University
Total	**10**	**40.0%**	**45.0%**	**49.7%**	**5**	**40.0%**	**47.4%**	**55.3%**	**0**	**/0**	**/0**	**8.3%**	**8**	**0.0%**	**27.6%**	**60.8%**
URM	3	0.0%	26.5%	40.7%	1	100.0%	47.6%	55.2%	0	/0	/0	12.2%	2	0.0%	10.0%	65.2%
Non-URM	6	50.0%	49.1%	53.3%	4	25.0%	39.2%	54.9%	0	/0	/0	8.0%	5	0.0%	19.8%	54.2%

All others	1	100.0%	52.8%	52.9%	0	/0	64.9%	56.9%	0	/0	/0	4.9%	1	0.0%	50.0%	69.4%

7. **Headcounts of program majors and new students (per program and degree)**

Item 7. Headcount of Program Majors by Degree: Meteorology

	Fall 2014				
	New Students		Continuing Students		**Total**
	FT Admit	New Transf	Continuing	Retn.Tranf	
Total	**6**	**5**	**43**	**1**	**55**
BS	3	5	32	1	**41**
MS	3		11		**14**

We have resurrected the practice of contacting ALL HS students in ALL surrounding states who showed an interest in meteorology, climate, or physics during their SAT tests. We contacted each student with a letter and a brochure. This effort is designed to increase our freshman pool of applicants, and our enrollments. We shall see if it works!

8. **SFR and average section size (per program)**

	Fall 2014		
	Subject SFR	College SFR	University SFR
Lower Division	37.0	35.1	31.0
Upper Division	26.7	22.5	25.5
Graduate Division	5.5	9.6	20.8

	Subje Headcou per Secti
Lower Division	38
Upper Division	26
Graduate Division	2

In terms of SFR, we remain one of the higher SFR departments in the college. Our undergraduate SFRs > college SFRs. This was one reason we were given permission to hire new faculty.

9. **Percentage of tenured/tenure-track instructional faculty (per department)**

Item 9. Percentage of Full-Time Equivalent Faculty (FTEF): Meteorol

	Fall 2014			
	Department FTEF #	Department FTEF %	College FTEF %	University FTEF %
Tenured/Tenure-track	1.8	37%	53.7%	42.8%
Not tenure-track	3.1	63%	46.3%	57.2%
Total	4.9	100%	100.0%	100.0%

As recently demonstrated, and as these numbers demonstrate, we have a high fraction of P/T faculty. It's not that we don't have permanent faculty – we have way more than the 1.8 reported!!! It's that they are all very active and successful at research, and thus have significantly reduced teaching loads. So the 1.8 is a combination of several fractions of people. In addition we have had two faculty on sabbatical this year. Much of our instruction is performed by P/T faculty.

Part C

10. **Closing the Loop/Recommended Actions**

For the BS Meteorology, one recommendation from Program Planning was to hire more faculty. In AY 14-15 we accomplished that, so we are very happy. We feel this will give that aspect of our program some necessary permanence. Last year 's assessment analysis revealed no structural problems with the PLO we assessed, and thus no changes were made and thus there is nothing to report. The faculty faithfully discuss assessment during at least one (and typically more) faculty meetings per semester.

11. **Assessment Data**

In AY 14-15 for the BS Meteorology program we assessed PLO-4: "Be able to explain current climate in terms of basic physical and dynamical processes, and explain the mechanisms responsible for climate change." In the BS Meteorology, concentration Climate Science program we assessed PLO-1: "Be able to explain current climate in terms of basic physical and dynamical processes." Both PLOs were assessed in METR 123 (Advanced Climatology) which all students took. In this class, several questions were asked to determine students' abilities to meet these PLOs (noting that one is a subset of the other), including: "For a 2-layer atmosphere (trop + stratos), explain the SW and LW radiation streams at TOA, ground, and tropopause. Include an explanation of the greenhouse effect." All questions and data are archived in Department Assessment Data Archive (DADA).

12. **Analysis**

There were 20 students enrolled in the class, including 3 grad student, 8 seniors and 9 juniors. Fifteen of the students were in the Meteorology program, while five were in the Climate Science wing (3 seniors and 2 juniors). The course emphasizes the physical and dynamical processes that explain the Earth's climate. The course components highlight how physical processes such as radiative transfer and thermodynamics create the circulation in the atmosphere and ocean, which then determines the geographic climate regions (e.g. deserts at 30 N and 30 S).

Of the 20 students, 14 understood the concepts quite well (2 A+'s, 5 B+'s, and 7 B's). One of the A+ students was a grad student, and 2 of the 7 B's were grad students. Five students either understood the material only to a marginal degree or did not completely grasp some of the concepts (2 C+'s, 2 C's). One student's understanding was deficient – they did not grasp the material at all (grade D). Four of the climate science students were in the first group (2B+ and 2B) and 1 was in the middle group (C+).

13. **Proposed changes and goals (if any)**

Students who got A's or B's in this class are deemed to have satisfied the PLO, so we focus on the students getting C's and D's, and ask whether the course could be changed to improve the outcome for similar students in future.

The student who "earned" a D subsequently changed major (i.e., could not handle the rigor of the program). The four students who earned C's include one who is learning-disabled, keen as hell but struggles in most classes. That leaves three (of 20) students who under-performed in terms of the PLO. Our impression of these students is that they are all weak students. I would suspect they struggled with the Math & Physics we require @ start of the program, and most students like this continue to struggle in our program. So as to a fix, we *could* "raise the bar" in terms of expectations in the required Math/Physics classes (e.g., must pass on 1st attempt etc.). That would almost certainly eliminate the weaker students and improve our assessment outcomes. At the same time however, it would reduce our (small) enrollments and endanger our program. Hence we plan to leave things as they are for now.