De Anza College

Program Review – Annual Update Form – Meteorology (PSME)

1. **Briefly describe how your area has used the feedback from the Comprehensive Program Review provided by RAPP members (if unsure, request the feedback form from your dean/manager).**

   From the feedback last year, the department has made development of Open Educational Resources (OER's) a priority and has in fact acquired a $20,000/course grant from the state to develop/implement OER's for all four of the department's currently offered courses. Furthermore, through the Regular and Substantive Interaction (RSI) training provided by the district, the department is developing a set of standardized interventions to help struggling students.

   Furthermore, much of the feedback provided on last year's Comprehensive Program Review affirmed the department's push to develop a new degree and a new certificate. While our only full time faculty member was on Professional Development Leave (PDL) in Fall Quarter, we are now beginning the process of writing up the curriculum for both a Meteorology degree and a Climate Stewardship Certificate.

2. **Describe any changes or updates that have occurred since you last submitted program review (comprehensive program review submissions)**

   The department has been experimenting with the number and modalities (fully face-to-face vs. hybrid) of courses offered that have at least some on-campus components, with mixed results. We've found more success with courses that have a larger asynchronous component compared to a larger on-campus component. However, encouraging enrollment numbers from our Winter offering of Met 10, which was mostly on-campus, indicate that there is some appetite for more on-campus courses if they are properly planned. The department plans to continue experimenting with the offering of more sections with at least some on-campus component, considering the day/time, ratio of face-to-face/online asynchronous, and the particular courses that draw enough on-campus demand to not just be viable, but productive in terms of enrollment.

3. **Provide a summary of the progress you have made on the goals identified in your last program review (as included in the comprehensive program review).**

   While on PDL, Alicia Mullens began writing and revising a grant proposal for the National Science Foundation's Innovations in 2-Year College STEM Education (ITYC) program to develop and offer majors-level lower division Meteorology courses through a cohort pilot program. A component of this proposal includes the writing and offering of both an Associates Degree in Meteorology (with both a "preparation for further studies" track, and a

track devoted to enhancing a student's knowledge in Meteorology while allowing them to study in another field) and a Climate Stewardship Certificate. The cohort program will culminate in both a Climate Stewardship Certificate and an Associates Degree in Meteorology in the "prep for further studies" track.

Assessments have been made on one of the Met 10 SLOs and one of the Met 10 Lab SLOs. The department plants to assess one of the Met 12 SLOs and one of the Met 20 Lab SLOs in Winter of 2025.

4. **If your goals are changing, use this space to provide rationale, or background information, for any new goals and resource requests that you'll be submitting that were not included in your last program review.**

   At this point, Neither the development of a Climate Stewardship Certificate nor the assessment of SLO goals are being changed. However, with the pursuit of a National Science Foundation Grant, the SJSU Bridge program is beginning to evolve based on both the parameters of the grant requirements, and the viability expectations (in terms of course size) of De Anza. This process is still ongoing as the grant proposal is being revised and partnerships with SJSU are forming, so a more detailed rationale and explanation of changes made to this goal will be provided in the next program review update.

5. **Describe the impact to date of previously requested resources (personnel and instructional equipment) including both requests that were approved and were not approved. What impact have these resources had on your program/department/office and measures of student success or client satisfaction? What have you been able to and unable to accomplish due to resource requests that were approved or not approved?**

   The main instructional equipment and resources that have been provided to the department since the hiring of our full-time instructor in 2017 have been the Kestrel 3500 Pocket Weather Instruments purchased in 2021. These instruments have allowed students to gain a better appreciation of retrieving and assessing weather data. This has resulted in improvements on assessment questions regarding weather data platforms, and plotting/analyzing weather data, a previous weakness in student understanding.

6. **How have these resources (or lack of resources) specifically affected disproportionately impacted students/clients?**

   Being able to apply to what they are learning through hands-on activities has made the course material significantly more approachable to disproportionately impacted students. This has resulted in higher assessment scores on content related to weather variables and accurate measurement techniques.

7. **Refer back to your Comprehensive Program Review under the section titled Assessment Cycle as well as the SLO website (https://www.deanza.edu/slo/) for**

instructional programs. In the table below provide a brief summary of one learning outcome, the method of assessment used to assess the outcome, a summary of the assessment results, a reflection on the assessment results, and strategies your area has or plans to implement to improve student success and equity. If your area has not undergone an assessment cycle, please do so before completing the table below.

Table 1. Reflection on Learning Outcomes (SLO, AUO, SSLO)

Learning Outcome (SLO, AUO, SSLO)	Analyze and explain the objective techniques used by synoptic meteorologists and climatologists to forecast our planet's weather and to predict future changes in our planet's climate.
Method of Assessment of Learning Outcome (please elaborate)	Students were given a list of weather observation data for a 24 hour time period, and were asked three questions: 1. Did a cold front pass during the time period? 2. If so, when did the front pass? 3. What conditions indicated that a cold front passed?
Summary of Assessment Results	18 students exceeded expectations (3 of 3 questions correct). 15 students met expectations (2 of 3 questions correct). 3 students were approaching expectations (1 of 3 questions correct) 0 students did not meet the outcome.
Reflection on Results	While students were able to satisfactorily identify that a front did indeed pass, and were able to provide at least one weather condition that indicated a frontal passage, only half were able to pinpoint a correct time range for the frontal passage. Considering being able to determine when a front passed is an essential component of forecasting future motion of the front (hence this problem being an application of the SLO), there is room for improvement. This particular frontal passage scenario was, by far, the most subtle and difficult to

	pinpoint of the entire assignment I gave, so it could be argued that this scenario was more likely to have a lower success rate than other, more obvious scenarios.
Strategies Implemented or Plan to be Implemented (aka: enhancements)	There is a need to walk our students through a few more subtle frontal passage scenarios prior to assessing them on one, so we will do that in future assessments.

Done? Please email this form to your dean/manager.

8. Dean Manager Comments:

Our meteorology department has been going strong. Not only offering in person and online courses that fit student's General Education and Lab Science requirements, but they have also been pursuing grants and work with San Jose State University to grow our program and support our students who transfer there and other universities. The collaboration has been very productive to a point that we share parttime faculty and they will be installing a weather station on our campus. The program has no immediate needs at this point. However, it would be good to have another fulltime faculty to cover the department and help with curriculum development, but that could wait for a time when more funding is available.