



## Professional Development Application

### PLEASE REVIEW THE INFORMATION AND PROCEDURES PAGE BEFORE COMPLETING THIS APPLICATION.

If requesting a fund advance or traveling Out of State, include the SMCCCD "Conference Advance Form" with your application. **Submit your application to your Division Dean for review and approval thirty (30) days before the event.**

Attach a separate sheet addressing: **A) Benefit to the College, B) Enhancement to existing course or program area, C) Personal enrichment, D) If you are applying for Basic Skills Professional Development funds, please add a brief paragraph to your proposal explaining how your project relates to basic skills.**

### Section I: Applicant Information

Type of application: Short Term  Long Term  Extended Leave/Sabbatical  Basic Skills   
 Name: Jeanette Medina G# or SSN: G00488780  
 Faculty Status: FT  Adjunct  E-mail: medinaj@smccd.edu Phone Ext. 3255  
 Division: Science and Technology Discipline /Program: Chemistry  
 Title of Conference: NA  
 Location of Conference: NA Date(s) of Conference: NA  
 Fund Advance Requested: Yes  (include SMCCCD Conference Advance Form) No

Conference/Project Expenses: fill out appropriate expenses below.

	Registration Fee	\$ _____
Number of Miles (roundtrip): _____ x .55 (mileage rate)		\$ _____
	Transportation (airfare/train/bus/shuttle/taxi)	\$ _____
	Lodging (room charges & tax)	\$ _____
	Enrollment Fees	\$ _____
<u>4.8 units</u>	<b>Total Expenses</b>	<b>\$ <u>0</u></b>

(For Long Term projects) Number of units release time: 0.32 FTE for Fall 2010 semester/year.

Name of recommended substitute faculty (if required): James Schweppe

### Section II: Division Dean Approval

*Please fill out recommendation and, if needed, instructor replacement cost.*

A. I DO  DO NOT  recommend approval of this project or attendance at this conference.

B.  Instructor will not be replaced (coverage is not required or covered at no cost).

C.  Instructor will be replaced (calculate instructor replacement cost below).

Number of hours: <u>NA</u>	at Lecture/Non-Instructional Rate:	\$ _____	\$ _____
Number of hours: <u>96</u>	at Lab Rate:	<u>71.96</u> \$ <u>60.28</u>	\$ <u>5786.88</u>
Number of office hours: <u>25.6 27</u>	at Special Rate:	<u>51.57</u> \$ <u>43.78</u>	\$ <u>1120.71</u>
Estimated benefits (salary x [10% for Adjunct or 12% for FT]): <u>10%</u>			\$ <u>690.77 835.21</u>
<b>TOTAL Instructor Replacement Cost</b>			\$ <u>7598.42</u>
			<u>9187.39</u>

Comments or relevance to the Division (optional): \_\_\_\_\_

Division Dean Signature: [Signature] Date: 3/1/10

**Section III: Professional Development Committee Review**

Approve

Denied

Approved expenses:

Mileage (roundtrip) \$ \_\_\_\_\_  
Registration Fee \$ \_\_\_\_\_  
Airfare/Transportation \$ \_\_\_\_\_  
Lodging \$ \_\_\_\_\_  
SMCCD Tuition Fee \$ \_\_\_\_\_  
Instructor Replacement \$ \_\_\_\_\_  
**TOTAL** \$ \_\_\_\_\_

Comments (if required):  
\_\_\_\_\_  
\_\_\_\_\_

**Committee Chair Signature:** \_\_\_\_\_

**Date:** \_\_\_\_\_

**Section IV: College President**

Approve

Denied

**College President Signature:** \_\_\_\_\_

**Date:** \_\_\_\_\_

**Section V: Office of Instruction**

Application received on: \_\_\_\_\_

Conference Advanced form included:  Yes

No

This application was processed by: \_\_\_\_\_

**Administrative Secretary, Office of Instruction**

**Date:** \_\_\_\_\_

February 28<sup>th</sup>, 2010

Long term professional development application submitted by Jeanette Medina

Dear members of the Professional Development Committee,

I am submitting this long-term application to request release time equivalent to two units of laboratory in the Fall of 2010.

## **Background**

Several changes have occurred in the Chemistry Department during the past two years:

1. We lost our second full time faculty (Spring 2009);
2. our stockroom manager retired (Summer 2008);
3. we hired a new stockroom manager (Summer 2008);
4. we moved back to our renovated laboratories (Fall 2008);
5. we hired four new adjunct faculty (2008-2009 academic year);
6. we purchased a major piece of equipment (Gas Chromatograph for approximately \$30,000 was installed in the Fall of 2008 and a new laboratory data acquisition system (MeasureNet laboratory work station network for approximately \$40,000 was installed in Fall of 2008) with renovation budget.

In addition to the above, I lobbied for the purchase of additional major instrumentation from my own federal grant and from another Division's grant. These instruments are rarely found at Community Colleges. We are the only campus in our District to have such an inventory. We purchased:

1. A UV-Vis spectrophotometer with integrating sphere for approximately \$13,000 from my NSF grant. This instrument was installed in the Fall of 2008.
2. A nuclear magnetic resonance spectrometer with a broad band accessory. The CCRAA-HSI grant covered about \$100,000 for the spectrometer and my NSF grant covered about 14,000 for the broad band accessory. This instrument was installed in February of 2009.
3. A Gas Chromatograph with Mass Spectrometry detector for approximately \$57,000 from the CCRAA-HSI grant installed in January of 2010.

I have been fortunate to have a reduced load for the past three years paid by my NSF grant. This time allowed me to create a new program of study at Cañada: Chemical Laboratory Technology. I wrote course outlines for two new classes and the entire AS and Certificate description to go in the catalog. I submitted applications for endorsement to the Bay Area Community Colleges Consortium and to the State Chancellor's Office. I am happy to report that as of November 10<sup>th</sup>, 2009, this new program has been fully approved by the State and the new classes are fully articulated with the CSU system. However, I also spent a lot of my time in hiring committees, evaluation committees and making sure our new Chemistry Faculty and Stockroom Manager had the needed support to get acquainted with our procedures and with the functioning of our Department, Division and College. Therefore, I did not have the time to get familiarized with all of the new instrumentation to be used with the new Chemical

Technology Program and the existing Chemistry Program. The NSF grant support is coming to an end which means that I will resume my full teaching load in the Fall of 2010.

I am respectfully requesting from the Professional Development Committee release time equivalent to two units of laboratory. The laboratory I am requesting release from is Organic Chemistry laboratory, CHEM 237. This is an advanced class that requires several hours to grade laboratory reports in addition to the six weekly student contact hours. I will use this time to familiarize myself with the UV-Vis, NMR and GC-MS. I can then explore their fullest potential to incorporate their use across the Chemistry curriculum.

#### **A) BENEFIT TO THE COLLEGE**

The Chemistry Department has invested in all of these new instrumentation and laboratory equipment with the purpose of modernizing its infrastructure and positioning itself as a Department that can deliver up-to-date and relevant instruction utilizing state of the art equipment found in research laboratories. Acquiring the instrumentation is only a fraction of the potential. Only spending time to learn each piece of instrument will result in a modernized curriculum. Currently, we are experiencing an influx of students who otherwise would have chosen to go to a UC campus. Students have a choice of Community Colleges to attend. We must demonstrate to them that the education they will get here is comparable if not superior to the education they would get at any UC campus. Spending time to learn the instruments will allow me to write laboratory experiments that teach real life applications. Examples of relevant topics include water quality, air pollution, and food testing. My ultimate goal is to add a couple of low unit certificates to the Chemical Laboratory Technology so we can assure its sustainability. In addition, If I am very comfortable with the instruments, we can offer time on them to Faculty at Skyline College and College of San Mateo for a nominal fee. This fee will help us buy solvents and maintain the instruments.

#### **B) ENHANCEMENT TO EXISTING COURSE OR PROGRAM**

- I will write step-by-step protocols to get familiarized with the instrument that can be used by faculty, staff and students.
- I will be able to train any interested individual who would like to incorporate these instruments in their classes.
- I will be able to guide Honors students and Independent Research Study students while selecting research projects that involve the use of these instruments.
- New laboratory experiments will be developed that reflect technological advances in the chemistry field. For instance, determining sodium content in processed food by nuclear magnetic resonance (appropriate for elementary chemistry); determining caffeine content in health drinks by ultraviolet spectrometry (appropriate for chemistry for allied health sciences); determining liquid make up composition or degree of ligand complexation by visible spectrometry (appropriate for general chemistry); and determining the structure of aromatic contaminants in gasoline by gas chromatography coupled with mass spectrometry (appropriate for organic chemistry).

### C) PERSONNAL ENRICHMENT

I learned the theory and application of these instruments in my years as a chemistry graduate student. The school I went to did not have a GC-MS. The GC we had plotted the results on a chart recorder. We had to figure the sample's percentage composition by cutting the paper into pieces and weighing the paper pieces out. The UV-Vis we used was manually operated. The student NMR also plotted the spectra on a chart recorder. The better NMR was operated by a dedicated fulltime technician. The students were not allowed near it. I have kept informed about the advances in analytical chemical instrumentation by reading technical literature and attending workshops. The advent of the personal computers and the advances in programming has made it possible to couple chemical instrumentation with easy to use computer software. Nowadays, all instruments are linked to a personal computer and the results are printed on a regular office printer. If granted this release time request, I will get the opportunity to upgrade my instrumental analysis skills by learning to operate the instruments through their software interfaces.

#### PROJECT DELIVERY:

1. A step-by-step easy to use protocol to learn how to use each instrument from scratch.
2. A video recording to accompany the step-by-step protocol to use each instrument. This can be used to introduce the instruments to students before laboratory experiments.
3. A list of potential applications of each instrument that can be made into a laboratory exercise.
4. One written experiment per instrument.

Thank you for your consideration,



Jeanette Medina

Chemistry Professor