

To: UCITE
From: Patrizia Bonaventura
Re: Nord grant application

Cleveland, 9 May 2011

Dear Committee Members:

I would like to apply for a Nord grant, to extend and improve the activities related to the course COSI 302/402 Instrumental Measurements in Speech Science.

COSI 302/402 is a lab course that is now taught in the summer (June-July 2011), but will be regularly taught during the Spring semester, starting Spring 2012. The change will be implemented, following the curricular reorganization in the merged Department of Psychological Sciences, which the COSI Department now belongs to. These changes will bring more students to this course, which can now be used as an open elective for all majors.

In particular, COSI 302/402 course allows students to learn how to collect measurements for assessment and analysis of speech and voice disorders. Students can use this knowledge in their future clinical work, and will be able to conduct their own research studies, collecting evidence to support diagnoses and to develop new and improved therapies. The course will develop in the student the role of research clinician, strongly encouraged by the American Speech and Hearing Association, and will make possible wider implementation of evidence-based practice in speech-language pathology.

Not many programs in speech pathology can provide this type of instruction on instrumental measurements, due to lack of adequate experimental equipment and facilities that Case, through the gracious support of the CAS, has granted me. Therefore, I am now in a position to give students training in experimental techniques in speech and hearing science, through this laboratory based hands-on course.

The practical approach I adopted has been very well received by previous students (see attached midterm evaluations for the summer session 2009), and the students have been very proficient (see attached sample of homework by an Engineering student). I have been using materials and hardware provided by the University 5 years ago, also used in 3 of my other courses (COSI 211 Phonetics and Phonology, COSI 321/421 Speech and Hearing Sciences and COSI 453 Articulation and Phonological Disorders). Therefore, the equipment is now old, and some of the computers and recording devices have failed.

I would like to apply for the Nord grant to support the following needs of the COSI 302/402 course:

I would like to submit a request for two laptops and two desktops where students could work for the in-class lab exercises and for the homework projects and data collection; also, I would like to ask for 2 USB microphone headphones and 2 portable digital recorders, that would allow the students to record their own speech samples (either in class, in clinic or on the field), so that they could get hands-on experience of acoustic spectrographic measurements of speech and voice, and on their use for assessment and diagnosis.

Furthermore, I would like to ask for a replacement of the set of electrodes that I have used for instruction on measurements of vocal folds vibration and voice quality by an Electroglottograph (EGG) and for two sets of replacement sensors for demos of an Electromagnetic articulograph (EMA), used to train students in recordings of dynamic parameters of articulatory movements of tongue, and lips for speech production (see pictures of EGG and



EMA on my lab website: <http://www.case.edu/artsci/cosi/cspl/resources.html#Hardware> and pictures of EMA experiments on children on: <http://www.case.edu/artsci/cosi/cspl/research.html>.

I would like to integrate my teaching with a lecture held by an expert in articulographic recordings and measurements, Prof. Pascal van Lieshout (University of Toronto), who could speak on Skype or visit for one class on specific issues relative to application of this technique to assessment of speech motor disorders.

Finally, I would like to ask for support for 1 TA for the class, because the lab instruction needs a lot of individual assistance, targeted to the individual students' projects.

I think that the efficacy of the new tools I would acquire for the course, can be measured on the basis of the quality of the experimental projects and tests by the students (see attached example of final project by a COSI 302/402 engineering student).

I report the detailed budget here below. Please, do not hesitate to contact me for any further clarification and explanations.

I wish to thank you very much for your kind attention to this proposal, and I wish to emphasize the essential role of the UCITE weekly sessions and of Dr. Mano Singham's mentoring, in my personal development as a teacher and on the enrichment of my teaching techniques, which has led to an increasingly enthusiastic participation of the students in my classes. I would like to stress the importance of the UCITE center for the development of the new and advanced educational tools that make our University so special.

Sincerely yours,

Patrizia Bonaventura
Assistant Professor in Communication Sciences
Department of Psychological Sciences

DETAILED BUDGET

| | |
|---|--|
| 2 USB microphone headsets Plantronics: 2 Plantronics DSP400 Foldable Multimedia Headset | \$41.55 x 2 = \$83.1 |
| 2 portable digital recorders: 1 Olympus VN-8100PC Digital Voice Recorder 2 GB Flash Memory - LCD - Portable 1 Zoom H4n Handy Portable Digital Recorder | \$52.99 \$296.29 |
| 1 set of electrodes for KayPentax Electroglottograph | \$30 |
| 1 set of Balckwell DVD's Human Speech Set, by Robert Caldwell (ISBN 1934477168) | \$588 |
| 2 sets of 5 electrodes (HS220-L165M) for Electromagnetic articulograph AG200 | Euros 210x2 = Euros 420 = \$562.30 |
| Payment for 1 TA | \$200 |
| Honorarium for Prof. Pascal van Lieshout's lecture | \$200 |
| TOTAL | \$ 2012.68 |