

November 19, 2014

SUBJECT: Bruno Calfa's completion of the Future Faculty Program

To whom it may concern:

I am writing to confirm that Bruno Calfa, a Ph.D. student in Chemical Engineering, has completed all requirements for the Future Faculty Program offered through Carnegie Mellon's Eberly Center for Teaching Excellence and Educational Innovation. The Future Faculty Program is designed to help graduate students develop and document their teaching skills in preparation for a faculty career. Through his participation in this program, Bruno has demonstrated great dedication to undergraduate education at Carnegie Mellon specifically and teaching and learning generally.

This letter documents Bruno's activities and describes his fulfillment of the program's four required components: (1) seminar attendance; (2) teaching observations; (3) a course and syllabus design project; and (4) a teaching-related individualized project.

Requirement: Seminars

Graduate students must attend at least ten seminars through the Eberly Center, of which at least six must be designated as core seminars for future faculty. Each two-hour seminar integrates educational research and theory with practical pedagogical strategies and uses a variety of activities to draw on the experiences and reflections of the seminar participants. Core seminars focus on topics that we consider foundational for a faculty career, while elective seminars focus on more specialized topics. Bruno has been an active participant in these seminars and has shared insights from his own teaching experiences and disciplinary perspective. He has attended twelve seminars, of which six are core (indicated by an asterisk).

1. Building a Teaching Portfolio
2. Conducting Productive and Engaging Discussions*
3. Course and Syllabus Design*
4. Encouraging Intellectual Development and Critical Thinking*
5. Guiding Attention and Memory to Build Knowledge*
6. Incorporating Writing into the Disciplines
7. Making the Most of Your First Day of Class
8. Motivating and Engaging Students*
9. Overview of Student Motivation
10. Planning and Delivering Effective Lectures*
11. Responding to Student Writing
12. Teaching First Year Undergraduates

Requirement: Teaching Observations

Graduate students must receive feedback via observation by Eberly Center consultants on at least two occasions, of which at least one must be in an authentic classroom context. Bruno has received feedback on his teaching on two occasions.

In Fall 2011, two of my colleagues observed Bruno give two tutorials for undergraduate Chemical Engineering majors as part of a departmental initiative to help students become more proficient in MatLab. My colleagues observed Bruno use two research-grounded strategies that can facilitate student learning. First, Bruno employed the use of instructional cues, which are statements or phrases that direct students' attention to particularly important points, transitions, or connections between course material. For example, he used phrasing such as "We just talked about scalars and vectors, and now we'll talk about matrices" and "To illustrate this, we'll go to MatLab" to help students follow transitions between topics and software tools. Second, Bruno incorporated examples during the tutorials. Examples help students understand how to apply abstract concepts in a concrete way. During the tutorials, Bruno guided students through numerous example problems by modeling an "expert approach," while simultaneously allowing them to follow along on their own computers.

In Fall 2013, one of my colleagues observed Bruno give two guest lectures for 06-100: Introduction to Chemical Engineering. Bruno continued to use effective, evidence-based teaching strategies. He made the organization of material clear by presenting an advance organizer in the form of an introductory outline, which helps students situate new knowledge. He continued to refer to this outline throughout the lecture as he transitioned between topics. Bruno also incorporated visuals and videos into his lectures, which served multiple functions, including showing students how to enter commands in MatLab, demonstrating a method of sample collection, and providing students with different ways to engage with the material. As he used these visuals, Bruno gave verbal cues to orient students, and he consistently identified the most important parts or points.

Requirement: Course and Syllabus Design Project

Graduate students must create or substantially revise a syllabus that summarizes and represents their course design decisions. For his course and syllabus design project, Bruno developed a syllabus for an undergraduate course called Numerical Methods in Engineering.

In his syllabus, Bruno provided comprehensive information about multiple aspects of the course, from student-centered learning objectives and details about graded components to behavioral expectations and academic honesty. His four learning objectives focus on demonstrable goals for students (e.g., "Utilize MatLab's and Microsoft Excel's builtin features and develop your own procedures to solve the types of problems covered in the course and beyond"). Bruno's syllabus also provides students with detailed information about homework assignments and projects. In this section, he recommends that students produce their documents using the document markup language LATEX, and offers assistance to students who are interested in learning to use this tool.

The combination of accessible student-centered learning objectives and course details can provide a useful guide not only for students in taking the course, but also for Bruno in designing the lectures and assessments he refers to in the syllabus.

Requirement: Individualized Teaching Project

For his individualized teaching project, Bruno created a substantial teaching portfolio as a means of reflecting on and summarizing his accomplishments in a teaching role. This portfolio's contents not only represent his work in designing and producing instructional materials, but also demonstrate his enthusiastic and thoughtful approach as an educator. Specifically, his portfolio contains:

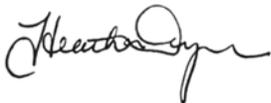
- Teaching philosophy statement
- Summary of teaching experience as a teaching assistant, guest lecturer, and tutor
- Evidence of teaching effectiveness, including a department teaching award
- Sample teaching materials, including his syllabus, MATLAB tutorials, and guest lecture slides

Bruno's teaching philosophy statement provides an intellectual and practical framework in which to interpret the materials that follow it. In his statement, Bruno describes the two ways in which he prepares students to use learned concepts in the real world: by starting with effective teaching of fundamentals, and by incorporating assessments that require students to practice communication skills via collaboration and presentation. He provides examples of how he achieves this, such as assigning a group project with real-world applications in which students work in teams to achieve a common goal. In his statement, Bruno describes his belief that "an educator is a facilitator of learning," and his portfolio materials offer significant evidence and insight into how he enacts this philosophy in practice.

Concluding Thoughts

In completing the Future Faculty Program, Bruno has developed significant knowledge of effective pedagogical principles, gained experience in applying these principles, and received formative feedback on his teaching. If you have any questions about the Eberly Center's Future Faculty Program, please feel free to contact me by phone (412-268-4083) or email (hdwyer@cmu.edu).

Sincerely,



Heather Dwyer, Ph.D.
Teaching Consultant
Coordinator of the Future Faculty Program