Specific activities performed by STLF

1) Professional Development.
   - I have begun organizing a departmental math education reading group

2) Department meetings/activity
   - Met with Sandra on 08/09/2013 to discuss my initial duties as an STLF.

3) Course-specific meetings/activities
   MATH 102 – Differential Calculus for Life Sciences
   The instructor in charge, Eric, and Costanza have identified to components of the course they would
   like to see more well developed; Learning Goals and Instructor Guidelines. Also, a survey polling
   the students on the efficacy of the spreadsheet components of the WeBWorK assignments is to be
   designed.
   - Learning Goals. I have begun compiling learning goals for this course. A couple of the
     instructors are creating them independently which has helped augment those that I create.
   - Instructor Guidelines. Eric is interested in creating these. I will assist him with this.
   - Survey. This is in the planning stage.

Plan for immediate future work

Research topic related to Math 102.

Eric and I had discussed what component of the course I should assess. We did not come up
with anything in particular. I am inclined to begin work on a research question of interest beyond Math
102. I have two ideas in mind.
   1) Assess how deep the student’s procedures are. Much of the research in mathematics education
      focuses on the acquisition and development of conceptual knowledge. Yet instructors,
      especially those teaching service courses or receiving students from service courses, often
      expect their students to demonstrate their knowledge by executing procedures. How “deep” are
      these procedures? Star (2005) identifies two aspects of deep procedures: flexibility and
      innovation. Are Math 102 students able to apply a procedure flexibly? Are they able to
      innovate within a given procedure to produce a more efficient solution? This would be a
      significant expansion upon previous work (Maciejewski and Mamolo, 2010).
   2) Determine if “the derivative”, for example, exists as two separate entities, one as procedure and
      one as concept, in the students’ minds. This would involve designing an assessment on both the
      conceptual and procedural aspects of differentiation. This may be a bit more difficult than the
      first question and may require input from a psychologist.

References
Education, 36, pp. 404-411.
In Liljedahl, P. (Ed.) Proceedings of the 2010 Canadian Mathematics Education Study Group,
Vancouver, British Columbia.