STLF Report to CWSEI and Mathematics Department

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Specific activities performed by STLF

1) Professional development
   - Attended reading group (Aug 2, 9, 16)
   - Attended math reading group (Aug 16)

2) Math SEI general meetings/activities
   - Attended weekly STLF meetings (Aug 3)
   - Met with Sarah and Math-SEI group to review current projects and discuss future plans (Jun 16, Jul 28)
   - Met with Jim Carolan to review current projects and discuss future plans (Jul 6, Aug 11)

3) Course-specific meetings/activities

   MATH 257/316 – Partial Differential Equations/Differential Equations II
   - New materials developed
     - Powerpoint lecture slides and examples
     - Webwork assignments
     - Excel 2007 (or 2010) and Calc 3 tutorial webpages (based on Costanza's pages)
     - Notes and Excel files on numerical methods for ODEs
     - Sample Excel files for
       - Numerical solutions for 1st and 2nd order ODEs + series solutions
       - Fourier series expansions
       - Finite difference solutions + Fourier series solutions for heat/wave/Laplace equations with different types of boundary conditions.
   - Student performance
     - MATH 257
       - 30 students
       - 19 in civil engineering, 11 in other engineering programs
     - MATH 316
       - 44 students + 2 auditing graduate students in finance
       - 16 in math, 6 in physics (1 with math), 5 in computer science (1 with math)
     - Midterms and exams

	MATH 257 (N =30)		MATH 316 (N =44)	
	Average	Median	Average	Median
MT1 (%)	79.0 ± 3.5	80	89.7 ± 2.3	95
MT2 (%)	45.9 ± 4.6	40	68.0 ± 4.0	75
Exam (%)	66.7 ± 3.6	68	77.9 ± 2.8	86.5
Final grade (%)	67.3 ± 3.6	69	79.2 ± 2.8	86.5

       - The difference in performance between Math 257 and 316 is huge.

- o Average homework marks (only for those who handed in)

	MATH 257 ($N=30$)	MATH 316 ($N=44$)
Written	64.2% (81.7% of students handed in)	80.6% (86.4% of students handed-in)
Webwork	82.1% (90.0% of students handed in)	90.4% (92.7% of students handed in)

  - Participation rates are not significantly different between two classes
  - The performances in written assignments are different
- o I have given a survey about students' background and perceptions in numerical methods. Results will be included in the next report.

MATH 210 – Introduction to Mathematical Computing
- This is a course in Term 2 about computer algebra, graphics (Maple) and some numerical methods (MATLAB).
- Pre-requisite: 1st year calculus
- Co-requisite: introductory proof, linear algebra and elementary differential equations
- 3 hours of lectures and 1 hour of computer lab session every week.
- Weekly assignments are given in the beginning of lab sessions. Students are expected to start the assignments during lab sessions and continue on their own afterward. I will be in the lab as an assistant.
- Midterms and exams will be written in the computer lab.
- The part with MATLAB is new. I am working on the new syllabus which incorporates topics that can be done with MATLAB.
- Learning goals, assessments, and future plans will be created after the syllabus is finalized.

MATH 305 – Applied Complex Analysis
- The first draft of the learning goals is ready. Will work on the second draft after instructor's feedbacks.
- Have been organizing the data and will discuss with the instructor about learning goals and future plans on Aug 19.

MATH 110 – Differential Calculus
- A new section with 9:00 lectures is opened as a replacement of one of the two 8:00 sections.
- Have been organizing the data and will discuss with the instructor about future plans on Aug 18.

Basic Skills Test (BST)
- 4 sittings – Sept 1 and 8, 17:00 – 18:30 and 19:00 – 20:30
- We will use the existing questions (from May sitting) for September sittings. 2 more versions for most of the multiple-choice questions will be added. There will be a TA checking the new versions during the week of Aug 22.
- An internal documentation about the setup of the BST will be created for future references.
- 1 more round of question-by-question analysis will be done during Term 1.

Current project status (material prepared by either STLF or other members of the MATH SEI)

MATH 110:
Learning Goals: 3rd draft of learning goals is complete.

Assessments: Diagnostic test and attitudinal survey will be given in the beginning of the term
New Methods/Materials: 4th workshop format is used.

MATH 210:
Learning Goals: Not started
Assessments: Not started
New Methods/Materials: The MATLAB module is new.

MATH 300/305:
Learning Goals: 1st draft in done.
Assessments: Diagnostic test. Need to discuss with the instructor first
New Methods/Materials: None at this point

Plan for immediate future work

MATH 110/305:
1. Discuss future plans with the instructor
2. Revise the diagnostic test

MATH 210:
1. Create a new syllabus which incorporates topics involving MATLAB
2. Create learning goals and diagnostic tests

Basic Skills Tests:
1. Prepare for September sittings

Math Attitudes and Perceptions Survey
1. Communicate with Warren about validations with students, changes to the questions and preparation for September.