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Min-Lin Lo TSSA Winter 2015

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Winter 2015 Teaching Skills Study Award (TSSA) Report

Name: Min-Lin Lo

Department: Mathematics

Email address: mlo@csusb.edu

Date Submitted: January 14, 2015

Name and Date of conference attended: AMS-MAA Joint Mathematics Meetings
January 10-12, 2013

Teaching Skill(s) Studied:

Strategies (including using humor) that enhance teaching and learning mathematics.
Developing mathematical thinking and problem solving skills through games, IBL, and flipped classroom.

Innovative and effective ways to teach assorted math topics.

Making connection between math concepts using real life objects and applications of math.

Impact on Current Teaching (How was this info applied)?

I learned several new hands-on activities and structure and how they are applied in the presenters' class that I plan to adapt to use in my classes when appropriate. E.g.,

1. Using popular culture references to create themed exams.
2. Ask students to make up their own story behind the unrealistic word problems in the text book.
3. Using technology (e.g., Maple player) to help students visualize multi-dimension concepts.
4. Using comic strips as semi-authentic applied problems (some examples can be found from xkcd.com, Fox Trot, Dilbert, and Fraz).
5. Using Class Joke Contest to encourage creativity and improve attendance. (Joke criteria: Is it funny? Original? Related to the course?)
6. How a group of MIT students using math to beat the Massachusetts lottery and won over 3 million dollars.
7. Ask students to write an instruction of how to make a Peanut Butter and Jelly (PBJ) sandwich to show the need for precise language in math proofs. Using the character of PBJ Guy to make students better able to figure out how to give and take criticism usefully, and thus become better writers and mathematicians.
8. Statistics class activity using M&Ms and chopsticks.
9. Using candy, bonus points, and friendly competition to make practicing even the most basic definition-checking direct proofs more exciting for students.
10. Using IBL or flipped classroom teaching models.
11. Using the hands and eyes to demonstrate linear algebra concepts.
12. Projects in an Abstract Algebra course. Asking students to find applications on the material they learned in the course.
13. How to design exam questions that allow fair grading on proofs.