MATH 132B, Spring Quarter, 2005
Instructor: Bo Li

In-Class Presentation

1. **Why an in-class presentation?** You will be surprised how much you will learn from your presentation!
   - motivate studies of integral equations
   - active and creative learning
   - unique experience of presentation

2. **What is the format of an in-class presentation?** Free style!
   - use a chalk-board, or transparencies with an overhead projector, or a computer with an LCD projector
   - time during: from 5 minutes to 20 minutes, or to 50 minutes or more, if needed
   - many questions in the middle of and in particular after a presentation
   - handouts are welcome but not required
   - be there to support your fellow classmates and ask questions

3. **Topics: Anything related to the course!** For example:
   - separation of variables: one-dimensional problem, two-point eigenvalue problems with different boundary conditions;
   - give 3 to 5 different examples of integral equations, in particular, examples of integral equations from your research areas;
   - solve a homework problem in details;
   - some section from the text book, e.g., the Fredholm integral equation of the second kind with a degenerate kernel;
   - from probability to diffusion equation and to boundary integral equation;
   - how about a mini-lecture on the iteration technique for the Fredholm integral equation of the second kind - general method and an example?
   - search the web and find 3 to 5 books on integral equations that you think are best for this course, give some reasons;
   - solve an integral equation numerically;
   - describe Abel’s problem and explore a bit more if possible;
   - solve a singular integral equation;
   - What are the most important properties of a Hilbert space in terms of integral equations?
   - What do you know about operators on a Hilbert space?
   - many, many more.

4. **Preparation**
   - Discuss with your instructor to pick up a topic and schedule your presentation.
   - Ask your instructor any questions!

5. **Grading**
   - Your fellow classmates, together with the instructor, will give you a grade.