

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.