# Teaching And learning in mathematics courses

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# Teaching Philosophy

1. We have to teach the students we have. No point complaining about lack of student motivation.
2. Start from what they know.
3. Depth not Breadth (i.e. it is better to teach fewer topics thoroughly and have students understand well, than a lot of material)
4. Work with going from Concrete to Abstract… though the other way round is more efficient.
5. Emphasise with examples.

# Concrete suggestions

1. Introduce a course “Set Theory and Logic” to 1st semester M.Sc. Students. Learn to write proofs in situations where the math itself is familiar.
2. Introduce a course “Mathematical Writing” for 1st year Ph.D. students.
3. Prune the overall course(s) content.
4. Avoid duplicating text. Emphasise motivation. Convey insights not found in texts.

# active learning in classroom, peer learning, exams

1. Suggest that students read in advance the particular topic to be covered.
2. Students can form groups, do assignments, mini projects---group could be mixed for performance.
3. Open book format for exams, weightage for presentations and class participation.

# AV materials use, tutorials

1. Provide formal orientation and structure for T A s to tutor and grade.
2. Incorporate communication skills and teaching tips.
3. Make class plan, outline on slides that can stay through the lecture on one side.
4. Use the blackboard for explaining.