

Developing a Learning Community

In Math 302A/B we stress a student-centered approach to instruction. Teacher driven lectures are de-emphasized in favor of a more participatory learning environment. Class time will frequently be devoted to group work, with students engaging in mathematical exploration and problem solving. When possible, students will use hands-on manipulatives and technology to form the foundations for conceptual mathematical ideas. The two courses model many of the recent recommendations for reform in mathematics education presented by the National Council of Teachers of Mathematics and other professional organizations. Thus, these courses emphasize problem-solving, use of technology (calculators and computers) and manipulative materials, cooperative learning, oral and written communication of mathematical ideas and solutions, and the connections between mathematics and its uses in everyday life.

Supporting the development of understanding of concepts, and interrelationships among concepts, requires a student-centered classroom in which the students are actively engaged in collaboration, exploration, and discourse. Collaboration and exploration are necessary for developing deep knowledge of course topics. The discourse that occurs during class, in large and small group discussions, is an essential component of the course. This approach serves not only the learning of Math 302A/B students, but also models the approach the students should use in the future in their own classrooms.

We need to work cooperatively to develop an atmosphere of trust where everyone is encouraged to participate. This is what we mean by a Learning Community. A key aspect of this Community is going to be group work. Group work does not mean one or two people doing the work and the others watching. It means coming together and sharing in the experience. It does not mean for the “strong” person to take the lead and for the others to follow. We think that often the labels that we attach to people (“good at math,” “bad at math”) are based on rather superficial perceptions and are very detrimental because they give us the idea that people cannot change labels.

Some will be stronger at certain things than others, but as teachers-to-be, you know that everybody has something to contribute. For those of you who feel that they are “strong,” we ask that you help your peers, not by doing the work for them, but by dialoguing with them, by asking probing questions to help them think through the problems, by helping them make the connections. This is what we hope you will do when you are teaching your own class. Teaching is not imposing your view on how to do things (by showing them), but rather, seeing where the other person is coming from and working from his/her point of view to help him/her construct an understanding that is his/her own. For those of you who think that you are “not strong at math,” we ask that you do not accept that which you do not understand, do not give in to a peer (or to the instructor) telling you that this is the way it is. Mathematics is something to be talked about, to be discussed. This exchange of ideas makes this course very enjoyable to teach!

We may be changing the groups from time to time. The first time we do this, it is usually hard because you have developed friendships. But we do believe it is important that you get to work with as many different people (and hence different learning styles, different backgrounds) as possible. These are small classes. Our goal is that you will get to know each other.

We will not elaborate anymore on the atmosphere in the classroom. This will develop as we embark on our journey together. We have only one last point we want to make: CLASS TIME IS WORK TIME, which means that if at any moment you are “idle” because “you are done,” think again... are you really done? Is everybody in your group done with the problem(s) or task(s) under discussion? If so, use that time to look for other ways to approach the problem, to write a reflection on the task you just completed, to work on other problems in your sheet or text. There is always something mathematical that you can be doing. The goal is not to get done as fast as possible but to reflect and learn in the process.