MA330 Policy (Spring 2016)

- **Instructor:** Dr. Avinash **Sathaye email:** sathaye@uky.edu
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- **Office:** 703 POT (Phone 257-8832)
- **Office Hours:** Tentative: MWF 10:00-10:50 in Office or   Mathskeller.
  Also, you may come by any other time and I will help you if I am free. I mean this!

- **Textbook:** *The Crest of the peacock by G. G. Joseph. Other reading material will be assigned during the semester.*

- **Syllabus:** The text emphasizes the non-European roots of Mathematics and we will try to compare and contrast the usual mathematical theories met in regular courses with their historical development. The subject matter is vast, but we will settle on selected segments based on a combination of student interest and historical significance.
  I make a point of teaching some topics from Indian mathematics which are useful even in Modern mathematics, but not usually taught in courses. The exact details will be posted on the web page as they are settled.

- **Structure of the course:** We will begin with a general discussion of various Mathematical topics that you have studied and try to determine the specific details that we need to pursue. I typically make a general review of set theory, number systems, algebra and geometry with brief pointers to their development. I expect feedback from the students for fixing the further direction of the course.
  Then we will pick up and discuss specific chapters from the textbook as well as several other source books.
  As we progress, I will split up the class into teams for the purpose of working on the projects described below. From time to time, the teams will be asked to report to the class.
  When I teach a specific mathematical skill of interest, I will follow it up with a quiz (announced at least a day in advance) and you will be expected to prepare for it.
  I have a new collection of manuscripts from India and also some newly printed reports and essays. Some of these will be posted on the web page as additional sources for you to study and discuss.
  The course shall be split into four periods: First three periods are 12 lectures each and the last one has 8 lectures.
  Detailed plans for each period will be posted on the web page.

- **More about the course:**
  UK Mathematics Department Professional Themes

  This course will address the four themes of the conceptual framework for the UK professional education program: ***research, reflection, learning,*** and ***leading.*** Students will engage with fundamental ideas in mathematical *research*, *reflecting* on and analyzing core mathematical content that arises throughout mathematics at all levels. Students will develop as life-long mathematical *learners* who will be able to take active *leadership* roles in their future roles as professionals and citizens. The ultimate goal in addressing these four themes is to produce teacher leaders who work together to improve student learning among diverse populations and improve education in Kentucky and beyond.

- **Unbridled Learning Initiatives and the Kentucky Core Academic Standards**
  This course will provide students an opportunity to advance their knowledge and mastery of the "tools" associated with Kentucky education reform, focusing on the content and practice standards outlined in the Kentucky Core Academic Standards. As students carry out projects and complete assignments that

involve mathematical content underlying instructional activities for P-12 students in Kentucky schools, they will address one or more components of the Unbridled Learning initiatives.

- **Projects:** There will be a total of two projects during the semester. The first project will be a team project (with a team of about 3/4 students), while the second project will be the final exam. It will be based on your individual work.
  The midterm project shall be due on Friday 3/2 and the final project is due on Wednesday 5/4.
  The teams and the topic for the first project should be decided during first three weeks.
  The topics for the final project should be settled on by the midterm and the project is expected by the final week, even though the formal deadline for submission is during the finals' week.
  Topics and outline for both projects should be fixed in consultation with me, sufficiently early. to avoid conflicts and to allow you enough time for actual work.
  At least a few of the projects shall be selected for class presentation during the last week.
- **Exams:** I do not expect any written exam in class. The two projects will be treated as two exams.
  The deadlines for the projects will be strictly observed and any delays shall be costly in grade.
  In case of a seriously faulty midterm project, I may require a rewrite and the whole team will be responsible for the work.
- **Quizzes and homework:** I plan to give occasional quizzes and some homework to be submitted. I will try to spread these evenly during the semester.
- **Class participation:** It is crucial that you actively participate in class discussions and research projects. If I have made a reading assignment, I expect you to answer questions about it if I direct the question to a specific student. It would be good to be prepared.
- **Attendance:** Attendance accounts for the part of the grade and if you need to miss the class for an unavoidable circumstance, then you should contact me for permission.
  There are 44 class periods. I expect you to attend at least 40 classes. Any unexcused absences beyond 4 will cause a reduction of the attendance grade.
- **Grade:** The midterm project shall be 150 points and the final project shall be 100. The quizzes and the homework shall be a combined total of 100 points and the attendance will count for 50 points. This makes a total of 400 points.
  The final grade shall be on the usual (percentage) scale E(0-59), D(60-69), C(70-79), B(80-89), A(90-100).

- **Advice:** This course is very different from a typical Mathematics course. You should not think of it as a chore to be finished, but an interesting journey into a fantastic world. You should try to use your imagination and you should be raising your own questions to investigate.