PIC Math – Preparation for Industrial Careers in Mathematical Sciences

MATH 4463, Topics in Applied Mathematics, 3 cr.
MWF, 11:00 – 11:50 a.m.
Spring 2020

Instructor: Dr. Xiaoxia ‘Jessica’ Xie   Email: xiexia2@isu.edu   Office: PS 322-C

Course description: This is a capstone course for students with strong mathematical preparation. Students will work in teams on a project from an industrial firm, non-profit foundations and institutions. Student success will depend on realistic industry evaluations such as teamwork, communication, individual initiative, and final products.

Prerequisite: Instructor permission. Exception can be made, but preferred qualifications are:
- Experience with Excel and basic understanding of data.
- Successful completion of MATH 2240, and MATH 3350 or Math 3360.
- Basic experience with team work, report writing and presentation.
- Coding experience is preferable but not required. Students with minor coding back-ground will be teamed up with those who have more experience.

Course objective: Upon successful completion of the course, student will be able to
- Formalize and solve a business problem using appropriate mathematical tools.
- Independently learn and apply new theory/technologies not taught in class.
- Develop work ethic to respond in timely manner under teamwork setting.
- Conduct professional presentation and writing skills at an industrial level.
- Understand the role of math in industry and make an informed career choice.

Course format:
- Industrial project: Throughout the semester, student will work in groups to solve a project provided by an industrial company. Student will be working directly with the industrial liaison to conduct a final report and a final presentation.
- Outside classroom: Most of your work (reports and presentations) should be done outside the class. The minimal expected work outside class is 5 hours per week. The more you put in this class, the more you gain.
- Instructor: Instead of lecturing, my role is to keep you on track and provide feedback to your work. I will also help you on any issue that comes up along your work. Keep in mind that you are the one who will solve the problem, defend your idea and convince the audience that your method is the best.
- National competition: The instructor will pick outstanding teams, in the middle of the semester. Their presentations will be video-taped and sent to a national competition. The winner will be presenting their findings at the PIC math session of MAA Math Fest 2020 in Philadelphia, PA (July 29 - August 1). All the travel will be paid by the PIC math grant.