Computer Science Inquiry (CSI)
CS100

Instructors: Dr. Phadmakar Patankar

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Office hours: 1:00 pm – 2:00 pm or by appointment (Dr. Patankar)

Attendance: We strictly follow IMSA attendance policy; NO EXCEPTIONS.

Course Description:

This introductory one-semester seminar is designed for students who have prior knowledge of programming experience, and knowledge of math and statistics (see prerequisites for details). We will study two classes of problems supervised learning and unsupervised learning. We will use Python programming environment. In supervised learning, we will study problems of type – how to program the machine to predict the price of the house. In unsupervised learning, we will program the machine to answer questions, such as, whether a given email is a spam? We will study several problems in each category. The students are encouraged to research problems of their interest and work on those as part of their project assignments.

Student Expectations:

All students are expected to

- be involved in class discussions and explorations.
- keep up with the reading material and check classroom regularly for handouts, assignments and submissions.
- complete all assignments and exercises in a timely manner.
- take responsibility for learning.
- take responsibility for seeking additional help as it is needed.
- have a working computer with them during each class.
- to select a topic that would lead to an SIR project.

Topics to be covered:

- We plan to use Python in Anaconda environment.
- Python libraries.
- Jupyter notebook for code.
- Numpy.
- Pandas.

- Matplotlib
- Scikit-learn
- Topics in Linear Algebra as needed, for example matrices and operations for them.
- Topics in Calculus such as gradient and gradient descent.
- Topics in Statistics such as regression, probability.
- Additional topics at teacher's discretion.

Course components:

Exercises: Must be completed on a timely basis. Will be checked regularly during class/lab time.

Projects: Projects will be assigned throughout the semester. Ample time is allowed for each project in and out of class time.

Labs: Labs are designed to be completed in class. As such the labs are due by the end of the class the day they are assigned. The labs are meant to help students exercise specific concepts covered in (or out of) the class.

Quizzes/Exams: Pencil and paper tests/quizzes will be given periodically to test students' understanding of the material. All the tests/quizzes are comprehensive and will include all the material taught in class as well as some material that students are responsible for learning from their projects/assignments and/or online resources.

Late homework/projects will be severely penalized:

by end of the day: -20%

by beginning of the next class: -50%

All the assignments are to be submitted by the beginning of the class on a due date. Assignment will not be accepted after 5 school days of its due date and students will receive zero for that assignment.

Academic Honesty: All programs/assignments must be your own work. Copies of another's work will be considered plagiarism and treated accordingly. IMSA's plagiarism policy will be strictly enforced.

Class Rules: No food or drinks will be allowed in the class. No gaming in the class (unless it is an assignment). No head phones allowed during class. Every student will stay on task during the class time and will not leave the class till dismissed or he/she risks being marked absent.

Quarterly grades will be averaged using the following weighting:

Projects	30%
Quizzes/Tests	30%
Exercises	15%
Labs	20%
Participation/Organization	5%

Semester grades will be averaged using the following weighting:

Cumulative semester work	95%
Semester Final Exam	5%

PowerSchool calculates the grades using the above grade set up. Grades are calculated accurate to two decimal places. **No manual rounding will take place** after the semester grade is calculated by PowerSchool.