Course: STAT7900 - Special Topics in Machine Learning
Instructor: Dr. Jennifer Priestley/Dr. Ying Xie/Dr. Philippe Laval
Office: CL3005 (Kennesaw)/R2 – 318 (Marietta)/D-216 (Marietta)
Office Hours: By Appointment
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Course Pre-requisite: Entry into the MSCS/MSAS or PhD in ADS Programs.

Course Text:
Students will receive notes from the instructors. These will be posted on the website: https://analytics.kennesaw.edu/~jpriestl/WATSON/Schedule.htm

Meeting Schedule:
This course will meet on Fridays from 9:30 – 12:15 in CL2008.

Course Software:
This course will use a variety of software – including IBM Watson. While there is no specific requirement for technical expertise, we expect that you have a general working knowledge of computer programming.

Course Description:
This course is an upper division Masters/PhD level course in Machine Learning, Natural Language Processing and Deep Learning. These concepts will then be applied through a project using IBM Watson.
Learning Outcomes:
By the end of the course, students should be able to:

1. Integrate Machine Learning Concepts into problems plagued with “big data”;
2. Apply concepts related to Artificial Neural Networks;
3. Apply Logistic Regression to classification problems and derive an Iteratively Reweighted Least Squares (IRLS) algorithm for Logistic Regression;
4. develop a multi-layer perceptron based on Logistic Regression and introduce the back propagation algorithm for training multi-layer perceptrons;
5. Identify the issues related to applying back-propagation algorithm to neural network with deep architectures;
6. Understand the basic algorithms used by IBM Watson;
7. Develop a client-ready IBM Watson interface, including a web enabled API.

Grading will consist of three components:

Grading:
HW SET 1 25%
HW SET 2 25%
FINAL WATSON DELIVERABLE 50%

Attendance & Assignment Policies: We expect that on lecture days, you will be present for every class. During the Watson application period, we will be running the class as a Q&A opportunity.

Withdrawal Policy…The last day to withdraw from the course and possibly receive a "W" is October 7, 2015.

Students who find that they cannot continue in college for the entire semester after being enrolled, because of illness or any other reason, need to complete an online form. To completely or partially withdraw from classes at KSU, a student must withdraw online at www.kennesaw.edu, under Owl Express, Student Services.

The date the withdrawal is submitted online will be considered the official KSU withdrawal date which will be used in the calculation of any tuition refund or refund to Federal student aid and/or HOPE scholarship programs. It is advisable to print the final page of the withdrawal for your records. Withdrawals submitted online prior to midnight on the last day to withdraw without academic penalty will receive a “W”
grade. Withdrawals after midnight will receive a “WF”. Failure to complete the online withdrawal process will produce no withdrawal from classes. Call the Registrar’s Office during business hours if assistance is needed.

Students may, by means of the same online withdrawal and with the approval of the university Dean, withdraw from individual courses while retaining other courses on their schedules. This option may be exercised up until **October 7, 2015**.

This is the date to withdraw without academic penalty for Fall, 2015 classes. Failure to withdraw by the date above will mean that the student has elected to receive the final grade(s) earned in the course(s). The only exception to those withdrawal regulations will be for those instances that involve unusual and fully documented circumstances.

**Academic Integrity Statement:** Every KSU student is responsible for upholding the provisions of the Student Code of Conduct, as published in the Undergraduate and Graduate Catalogs. Section II of the Student Code of Conduct addresses the university’s policy on academic honesty, including provisions regarding plagiarism and cheating, unauthorized access to university materials, misrepresentation/falsification of university records or academic work, malicious removal, retention, or destruction of library materials, malicious/intentional misuse of computer facilities and/or services, and misuse of student identification cards. Incidents of alleged academic misconduct will be handled through the established procedures of the Department of Student Conduct and Academic Integrity (SCAI), which includes either an “informal” resolution by a faculty member, resulting in a grade adjustment, or a formal hearing procedure, which may subject a student to the Code of Conduct’s minimum one semester suspension requirement. See also [http://www.kennesaw.edu/scai/content/ksu-student-code-conduct](http://www.kennesaw.edu/scai/content/ksu-student-code-conduct).

**Unauthorized Collaboration:** Submission for academic credit of a work product, or a part thereof, represented as its being one’s own effort, which has been developed in substantial collaboration with or without assistance from another person or source, is a violation of academic honesty. It is also a violation of academic honesty knowingly to provide such assistance. Collaborative work specifically authorized by a faculty member is allowed. **Although we do not expect cheating, plagiarism, or unauthorized**
collaboration in my classroom, the penalty is an F for the course...AND we will do everything within our power to have you dismissed from the University and the University System of Georgia. And, we will tell your mother.