The University of Western Ontario

London, Ontario, Canada

Department of Computer Science

Computer Science 4435 – What is Cognitive computing?

Course Outline – Fall Term 2015

1 Course Description

You are going to learn about cognitive computing by *doing* it. Your team will pick a domain in which to build a cognitive question answering system, powered by IBM's Watson technology. You will pitch the idea and, if you are 'funded', your team will implement it on a full strength Watson instance. The course will culminate with a demo of your application and the presentation a full business plan for bringing what you've built to market.

2 Prerequisites

- Permission of the instructor

3 Instructor

4 Textbook and Lecture Notes

There is no required textbook for this course. Course notes, readings and pointers to other texts will be posted on the course website.

5 Course Website

The course website is: `cs4435.daleylab.org`.

Course announcements will appear on this website. The student is responsible for reading this website regularly.

6 Lecture Topics

- Introduction to Cognitive Computing

- Introduction to Watson

- Overview of topics selected from:

    - Natural Language Processing
    - Machine Learning
    - Information Retrieval

- Knowledge Representation and Reasoning
  - Question Answering
  - Corpus analysis

- Corpus Building

- Hands on with the Watson Developer's Cloud

- Content Theory

- Training and test theory

- Mobile app prototyping

- Business planning

7 Course Conduct

The course will meet for regularly scheduled lectures on Tuesdays from 9:30am-12:30pm in MC320 during the fall term.

The course will, for the most part, be operating on the "flipped classroom" model. You will be assigned readings and videos to view outside of class and we will use the contact hours in class for discussions and presentations.

8 Student Evaluation

The student's mark will come from applying what is learned in class in a progressive series of checkpoints leading to a fully-trained Watson instance and, if desired, a mobile app with which to access that instance.

A final acceptance test of your group's Watson question-answering system worth 30% of the final grade will be administered. There will be no mid-term exam.

- Assignments: 70%

- Final Watson acceptance testing: 30%

9 Assignment Schedule

The following is a *tentative* schedule for assignments and is subject to revision. Should an assignment be cancelled, the other assignments will be re-weighted in a manner which maintains their relative contributions to the overall grade.

Assignment	Due	Weight
Topic Pitch	6 Oct.	10
Deep dive lecture	20 Oct.	20
Progress report	3 Nov.	15
Prototype demo and pitch to investors	1 Dec.	25

10   Ethical Conduct

All assignments are group assignments. You may use any (legal!) resource at your disposal. The idea is to simulate building a cognitive computing focussed startup – you're here to *win*, not play according to an artificial set of rules.

11   Academic Accommodation for Medical Illness

For work representing 10% or more of the overall grade in the course: If you are unable to meet a course requirement due to illness or other serious circumstances, you must provide valid medical or other supporting documentation to your Dean's office as soon as possible and contact your instructor immediately. It is the student's responsibility to make alternative arrangements with their instructor once the accommodation has been approved and the instructor has been informed. In the event of a missed final exam, a "Recommendation of Special Examination" form must be obtained from the Dean's Office immediately.

A student requiring academic accommodation due to illness should use the Student Medical Certificate when visiting an off-campus medical facility or request a Record's Release Form (located in the Dean's Office) for visits to Student Health Services.

12   Accessibility

Please contact the course instructor if you require lecture or printed material in an alternate format or if any other arrangements can make this course more accessible to you. You may also wish to contact Services for Students with Disabilities (SSD) at 661-2111 ext. 82147 if you have questions regarding accommodation.

13   Support Services

Learning-skills counsellors at the Student Development Centre (`http://www.sdc.uwo.ca`) are ready to help you improve your learning skills. They offer presentations on strategies for improving time management, multiple-choice exam preparation/writing, textbook reading, and more. Individual support is offered throughout the Fall/Winter terms in the drop-in Learning Help Centre, and year-round through individual counselling. Students who are in emotional/mental distress should refer to Mental Health@Western (`http://www.health.uwo.ca/mental_health`) for a complete list of options about how to obtain help. Additional student-run support services are offered by the USC, `http://westernusc.ca/services`. The website for Registrarial Services is `http://www.registrar.uwo.ca`.

14   Addendum

The UWO Senate Academic Handbook has specified that the following points should be added to all course outlines:

Plagiarism: Students must write their essays and assignments in their own words. Whenever students take an idea, or a passage from another author, they must acknowledge their debt both by using quotation marks where appropriate and by proper referencing such as footnotes or citations. Plagiarism is a major academic offence (see Scholastic Offence Policy in the Western Academic Calendar).

Plagiarism Checking: The University of Western Ontario uses software for plagiarism checking. Students may be required to submit their written work and programs in electronic form for plagiarism checking.

Prerequisites for a course: Unless you have either the requisites for this course or written special permission from your Dean to enroll in it, you will be removed from this course and it will be deleted from your record. This decision may not be appealed. You will receive no adjustment to your fees in the event that you are dropped from a course for failing to have the necessary prerequisites.

Exam checking: Use may be made of software to check for unusual coincidences in answer patterns that may indicate cheating.