IFI 8410 – Introduction to Programming and Predictive Analytics for Business
Course Syllabus – Fall 2020

(Draft – Subject to Change)

Instructor:	Alexander, C. & Wang, Y.
Class Schedule:	Wednesday, 5:30p – 8:30p
Classroom:	Downtown Campus | At distance through Robinson Anywhere
Office Hours:	By Appointment

Course Description: This course introduces students to the science of business analytics and covers foundational material needed to use, apply and develop analytic solutions to real-world business challenges. Students will learn to identify the appropriate methods to collect, analyze, and visualize data and utilize data in decision making. Examples will illustrate the use of models to solve business problems such as reducing customer churn, customer segmentation, predicting market demand, forecasting stock prices, etc. Both structured and unstructured data will be used throughout the course. After taking this course, students will be able to:

1) frame a business problem using predictive analytics;
2) ascertain how and when to use specific models used to address business problems; and
3) develop enough proficiency in Python and/or in R to understand how predictive models for business problems are developed.

The course prepares students for IFI 8420, which focuses on the implications of machine learning and artificial intelligence for business strategy and creating business value.

Course Objectives: By the end of the semester students will be able to:

- Know how to frame a business problem that needs predictive modelling
- Know how to use logistic regression to predict customer churns
- Know how to use linear regression and decision trees to predict customer demands and stock prices
- Know how to use clustering methods to segment consumer markets
- Know how to use Python and/or R to process data
- Develop enough proficiency in Python and/or R to build predictive models

Contributing Texts: TBD (Note: Lecture notes will be posted on *iCollege*)

Class Schedule and Activities:

CLASS	TOPIC AND COURSE CONTENT
Session 1	Business problems framing & formulation
Session 2	An overview of different predictive models and the process of solution and presentation
Session 3	Set up solution environment and install packages in Python and R
Session 4	Data preparation to build predictive model: basic statistics in both Python and R
Session 5	Data visualization to check data normality and observe business trends
Session 6	Handle missing values and select features to build a predictive model
Session 7	Exam or presentation
Session 8	Linear regression to predict customer demand
Session 9	Use decision trees to predict stock prices for next week
Session 10	Reduce customer churns with logistic regression
Session 11	Interpretation of results and models improvement
Session 12	k-means clustering to segment the market and to offer the right price and service for each segment
Session 13	Incorporate text data in predictive models
Session 14	Project presentation