Instructor:	Kelvin King	Phone	315-443-5441
Office:	338 Hinds Hall	E-mail	kkking@syr.edu
Office Hours:	Thurs (By appointment)	Term:	Spring 2023

Teaching Assistants: Una Joh sjoh01@syr.edu
Jinfen Li jli284@syr.edu

Additional Information:

Location: In-person Hinds Hall 021

Class Time: Tues 9:30 am- 12:15 pm
Section: M002 Registration Code:

Course Description:
General overview of industry-standard machine learning techniques and algorithms. Focus on machine learning model building and optimization, real-world applications, and future directions in the field. Hands-on experience with modern data science packages.

Additional Course Description:
This course will introduce popular data analytics methods for extracting knowledge from data. The principles and theories of data analytics methods will be discussed and will be related to the issues in applying data analytics to problems. Students will also acquire hands-on experience using state-of-the-art software to develop data analytics solutions to scientific and business problems. The focus of this course is on the understanding of data and how to formulate data analytics tasks to solve problems using the data. The topics of the course will include the key tasks of data analytics, including data preparation, concept description, association rule analytics, classification, clustering, evaluation, and analysis. Through the exploration of the concepts and techniques of data analytics and practical exercises, students will develop skills that can be applied to business, science, or other organizational problems. The format of the class meetings will be a combined lecture, presentations, and lab format, with lectures, presentations, and class discussions to cover materials and lab time to investigate examples for the topic of the week. There will be weekly readings based on the textbook and on other materials, which will be posted online. One group per week will spend 10-15 minutes presenting an introduction to the materials for the week. This should include a description of the module, scenarios where the algorithm is used, comparisons between models, and pros and cons of using the algorithm/models.

Prerequisite / Co-requisite: IST 687, OR IST 387 with a minimum grade of B or higher
Audience: Graduate students desiring a formal grounding in Applying Machine Learning Models/Algorithms.
Credits: 3

Learning Objectives:
After taking this course, successful students will be able to:

1. Document, analyze, and translate data analytics needs into technical designs and solutions.
2. Apply data analytics concepts, algorithms, and evaluation methods to real-world problems.
3. Employ data storytelling and dive into the data, find useful patterns, and articulate what patterns have been found, how they are found, and why they are valuable and trustworthy.
4. Present reports using the MEAL concept of writing paragraphs, complete with citations and references where applicable.

Texts / Supplies – Required:

Brett Lantz (2019) Machine Learning with R (third edition).

Recommended:
Pang-Ning Tan, Michael Steinbach, and Vipin Kumar (2005) Introduction to Data Analytics. (Free sample chapters available at authors' website http://wwwusers.cs.umn.edu/~kumar/dmbook/index.php)
Tom Mitchell (1997) Machine Learning. (http://www.cs.cmu.edu/~tom/mlbook.html)

Software

Python, R or Orange

Note: We will mainly use Python and R, and occasionally Orange. Regardless of the platform used, all assignments must be submitted as well-formatted PDF reports (see below). The submission must include both a well-written report and your well-commented/documented executable code/script. DO NOT SUBMIT ONLY A SCRIPT/CODE File.

Assessment Item	Weight %
Homework Assignments	**40**
Group Project	**40**
Participation	**20**
Total	**100**

Grading:

For this class, an "A" would mean the student has the capability to independently solve a simple data analytics task. Below is a common formula for number-to-letter grade conversion.

Grading Table:

Grades	Grade Points/Credit	Total Points
A	4.00	93-100
A-	3.66	90-92
B+	3.33	87-89
B	3.00	83-86
B-	2.66	80-82
C+	2.33	77-79
C	2.00	73-76
C-	1.66	70-72
F	0	0-69

* source: http://www.syr.edu/registrar/students/grades/faq.html
[1]Grades of D and D- may not be assigned to graduate students.
Use Graduate syllabus template with the appropriate grading table

Homework Assignments: 40% (40 Points)
Assignments must be professionally prepared and submitted electronically to Blackboard. All assignment writeups should be submitted as a well-formatted PDF file in the dropbox folder on Blackboard, along with any supporting code (e.g., Jupyter Notebook, Knitted RMarkdown file, or Orange workflow file). Unless otherwise specified, all assignments at the very least should include the following elements:

- An introduction stating the purpose of the assignment
- Documentation of methods used
- Findings that are clearly delineated

Do not include long printouts of tables or debugging output. Do not include code in the written report unless there is a specific need to do so. I will take points off for misspellings / poor grammar/writing.

Participation and Attendance: 20% (20 Points)
Participation is required. Students are expected to attend all lectures. Absences in excess of **three class hours** without acceptable documentation may result in a failing grade or a drop from the course. Students arriving late or leaving early will be recorded as tardy. Every two tardy records will count as an absence. Students with excessive tardiness (5 or more) may be dropped from the course.
The faculty member will check for attendance at the beginning of the class hour possibly with the help of a TA. Tent cards will also serve as “placeholders” for attendance. Students are advised to be punctual for the class as they will be counted absent when they are not in their assigned seats when attendance is taken. Students will also be asked to return tent cards at the end of the lecture. Please note that any student signing, taking, or returning tent cards (or signing roll) for another student who is

absent from class will be dropped from the course. Random checks of the signed roll will be made periodically. Any student who has a signature on the roll/tent card taken but is not present when the name is called will also be dropped. Absence from scheduled class sessions, or behavior in class sessions that either violates a course or university policy or that negatively affects the ability of other students to concentrate or participate, will involve deductions in points that are appropriate – *see penalty section below.*

Participation includes engagement in class discussions, presentations, and lab work. Lab work and exercises that are turned in at the end of most classes is evidence of participation. You must be present in class to receive credit for participation.

Participation will be a factor in whether students who are on a final grade range boundary are considered for an upgrade to the next higher final letter grade.

It is understood that we are living in unconventional times, and I will be flexible with the various issues that students face. However, ***I expect to see ownership on the part of students to participate and make the most of them, as this sense of ownership is a key part of a graduate student's success in getting things done.***

Participation includes attending class sessions at the scheduled times, participating in discussions and presentations, offering comments and not just when called upon, forwarding questions and doubts to the instructor to clarify things, asking about concepts that are confusing, and generally demonstrating that the student "owns" their responsibility without having to be reminded of it. If you are proactive about learning this subject, then I will be most careful to ensure that you feel like an important participant in the course. Your weekly group Introduction presentations and discussions will count towards participation. There would be at least 1 (one) group Introduction presentation every week on the week's topic. This will also be factored into your overall participation score. Each group will do a 10-15-minute Introduction presentation on the topic for that week. Be prepared.

Independent Work

- All individual assignments and exams must be done solely by the student. Any submitted electronic files must be those of only the student. A student will receive a failing grade if the student is found to submit work that is not their own or if the test is taken by another person or AI.

-Group Project (1): 40% for the following assignments:

The objective of the project is to work as a team to apply concepts taught in this class to solve a data analytics problem. Groups of 3 / 4 people will be randomly selected. There are three presentation checkpoints for the group project, and each checkpoint is worth a certain number of points.

- **Checkpoint 1: (5%) Project Idea proposal and presentation:**
  Your idea proposal should include an overview of the data mining problem, with specific attention to the business case (how will your project benefit stakeholders?), the data set you will use and initial descriptive analysis, your proposed data mining approach, and the proposed approach, and how you plan to divide up work in the team.

- **Checkpoint 2: (10%) Project Progress Presentation:**
  Project progress presentation: show preliminary results and major challenges. Should have some initial results.

- **Checkpoint 3 (10%) Final project presentation:**
  Last round of feedback before submitting the final report.

Presentations will be graded based equally on the quality of the presentation (Were all team members present? Was the material communicated effectively?) and the degree to which the material being presented is sufficiently advanced given the stage of completion. Project Assignments are completed in groups, but grades will be given to each student based on work submitted and participation. Each student will complete a peer evaluation to that effect. The final project report is worth 15 points.

In lieu of online discussions, each group will present an introduction for 10-15 minutes on the subject matter for the week (see schedule).

NOTE: NOTE – ALL DELIVERABLES MUST BE UPLOADED VIA BLACKBOARD TO THE ASSIGNMENT LOCATION, AND THE REPORTS MUST BE IN PDF FORMAT ONLY. NO OTHER FORMAT WILL BE ACCEPTED FOR GRADING (ATTACH . PY AND R files). SUBMISSIONS NOT UPLOADED TO BLACKBOARD WILL NOT BE GRADED.

Grading of Assignments and How to Succeed in this Course:

Students will receive detailed documentation which describes the reason for any deductions and the total assignment points received:

Course Specific Policies on attendance, late work, make-up work, examinations if outside normal class time, etc.:

- **Registration**: Students must register prior to the first class or may be restricted from registering. If you are registered but not present at the first class, you run the risk of being administratively deregistered from this course so that your seat can be given to a student on the waitlist.
- **Late Policy for Assignments**: *All assignments are due before midnight on Sunday unless otherwise specified.* To ensure a fast return, all assignments should be submitted on time. One-hour grace period is given to accommodate any incidents around the deadline.
- **Collaboration**: You are free to discuss the assignments with your classmates, but you must write up the report all by yourself. Plagiarism cases will be reported to the university. Using AI or having someone else complete your assignments is also considered an academic integrity issue.
- **Communications:** This course will use Blackboard as the main communication platform for class exercises and notifications. Students are required to check their Blackboard accounts on a regular basis.
- **Attendance**: Attendance *in person* is required.
- **Lab work**: Most classes will involve some lab work. I do not grade this lab work, but if it is not done/done poorly you will lose points on your participation grade.

Note to students: Given the diversified background of data science students, one textbook might not fit everyone. If you like rigorous algorithm presentation, I recommend Mitchell's classic book on Machine Learning. Lantz's book offers a somewhat less technical treatment and can be accessed electronically through the library with your SU id (or on Blackboard)

Tips for success in this class: Curiosity, critical thinking, math, and programming.

- Curiosity: If curious about the data, pay attention to the data details. Don't treat a data set as a black box. Don't treat an algorithm as a black box. Try to see through them.
- Critical thinking: Data analytics is essentially research. You will learn and practice methods to discover patterns and evaluate whether and why the discovered patterns are true and useful.
- Math: You will need some math knowledge, such as algebra and probability, to understand how the data analytics algorithms work.

Typical Course Schedule

Unless otherwise specified, assignments are due in the drop box on Blackboard by midnight (11: 59:00 PM Sundays). All readings are from the Lantz textbook, 3rd edition.

Assignment Feedback will also include my written comments to clarify the above point values given.

Final Grading Approaches:

- Each student's final grade will be computed as the sum of all points earned in the course minus any points deducted according to the policies stated above. Grades are based on a total possible score of 100 points for the semester with bonus points available as stated.
- In the past, there have been students who have achieved a total of 100 points or more.
- I foresee no incompletes to be given due to the nature and timing of the assignments. If there is a problem, please make arrangements with me for a discussion about it prior to the assignment's due date.
- Project Assignments are completed in groups, but grades will be given to each student based on work submitted and participation.

Final Letter grades will be assigned into letter grade categories reflecting the performance of the class as a whole, and I reserve the right to adjust a specific student's final letter grade depending upon their individual situation. Generally, I use the following grading criteria to assign a final letter grade:

Grades	Grade points /Credit	Percentage Range	Total Points

A	**4.000**	**94+**	**94+**
A-	**3.667**	**9093**	**9093**
B+	**3.333**	**86-89**	**86-89**
B	**3.000**	**82-85**	**82-85**
B-	**2.667**	**78-81**	**78-81**
C+	**2.333**	**74-77**	**74-77**
C	**2.000**	**70-73**	**70-73**
C-	**1.667**	**55-69**	**55-69**
F	**0**	**<55**	**<55**

Getting an A-, B+ or B is not considered to be a serious performance problem in this course. I will help students if they are experiencing serious learning issues but it is not appropriate to expect only to achieve an A. Those who attend class, work hard, and seriously attempt to do well, will earn good grades appropriate for their effort. Extra Credit is built into the exam and assignment grading as specified earlier. Performances that are above expectations in assignments will be recognized with additional points. Resubmission of Projects (not assignments) is highly encouraged to increase the grade. ***Students who have serious concerns about their ability to perform well should discuss this with me to determine options. Other than the approaches mentioned here, there will be no extra credit assignments.***

University Attendance Policy

Attendance in classes is expected in all courses at Syracuse University. Students are expected to arrive on campus in time to attend the first meeting of all classes for which they are registered. Students who do not attend classes starting with the first scheduled meeting may be academically withdrawn as not making progress toward a degree by failure to attend. Instructors set course-specific policies for absences from scheduled class meetings in their syllabi.

It is a federal requirement that students who do not attend or cease to attend a class be reported at the time of determination by the faculty. Faculty should use "ESPR" and "MSPR" in Orange Success to alert the Office of the Registrar and the Office of Financial Aid. A grade of NA is posted to any student for whom the Never Attended flag is raised in Orange SUccess. More information regarding Orange SUccess can be found here, at: http://orangesuccess.syr.edu/getting- started-2/

Students should also review the University's religious observance policy and make the required arrangements at the beginning of each semester

Course Specific Policies on attendance, late work:

NOTE: "Attending Class" in this section refers to participation in the scheduled live sessions during the assigned time.

Faith-based Observances: Students who plan not to attend class due to a faith-based observance are asked to make prior arrangements.
See the University Religious Observances Notification and Policy at: http://supolicies.syr.edu/studs/religious_observance.htm.

Absence Penalty:
The following do not qualify as valid reasons for missing class:

- Personal travel of any kind that involves missing class, including to or from holidays, summer, or semester breaks regardless of the reason.
- Preparation for scheduled job interviews (business travel out of town on class days is allowed – see below for specific policies on this).
- Employer information meetings held on campus for students during class time
- Student group meetings for organizations or other classes
- Special events on or off campus unless I have been notified by the sponsoring faculty member that you are required to attend the function.

- Preparation for assignments due in other courses.
- Forgetting to attend (Yes, this has really happened!)

The following are the point deductions that will result from unexcused absences:

- Missing the **first or final class**: 3 points for each class
- **First absence** other than the above: 1 point
- **Second absence** other than the above: 2 points
- **Third and additional absences** other than the above: 3 points for each absence.
- **If more than 9 points are deducted due to absences:** *Your final grade will be automatically lowered by one additional* ***full letter*** *grade from the grade you earn in the course.*

Excused Absences: Point deductions will ***not*** be made for the following situations:

- Religious observances arranged according to official SU procedures as noted above.
- Illness on the day of class, or serious illness over time reported to me by the Health Center or iSchool Advising: If you are ill on class day and do not feel well enough to attend class, please either notify me before class or have someone you know to be sure to notify me. In this situation, it will be necessary to schedule a time for me to work with you virtually to make up the class session you missed. If you are ill enough to miss multiple class sessions, then you should be sure that iSchool Advising is notified so that I can make other arrangements for you to complete the class when you are feeling well enough to do so.
- Death in the family (with appropriate notice to iSchool Advising and me)
- To request an excused absence, you must:
  Communicate via professional email in a timely manner & **DOCUMENTATION MUST BE PROVIDED FOR AN EXCUSED ABSENCE TO BE GRANTED**

Late Assignments and Grade Impact:

Plan ahead! These assignments are difficult, and you cannot wait until the last few days to complete them. Assignments must be turned in on the date due by the time specified. There is, however, a grace period of 1 week for every assignment. Assignments submitted during the grace period will be marked late and graded with no points deducted. I understand we are living in unconventional times. Under no condition will Assignments submitted after the grace period be accepted irrespective of excuse. Recall (11:59:00pm)

Late assignments (except in the event of extenuating circumstances) are not accepted. Students who cannot submit an assignment due to illness or death in the family must notify the instructor via email prior to the deadline for submission, if possible, but no later than the day following the deadline, and may be asked to submit verification of the situation. **The following do not qualify as appropriate reasons to delay the submission of assignments:**

- Job interviews or advance time for preparation for them
- Special events on or off campus
- Personal travel
- Problems with technology – hardware crashes, computer loss, file deletions
- Assignments or Presentations due in other courses.

Late professional assignments in on-the-job situations will always create some negative impression. ***If you cannot complete work on time due to some need for help, then I expect to hear from you along the way as you discover your difficulty, rather than just when it is due (!)*** Re-submitted assignments (Projects) that are turned in late beyond the re-submission deadline are not accepted.

SYRACUSE UNIVERSITY STUDENT POLICIES & SERVICES

Syllabi Appendix for the iSchool - Effective August 2021

iSchool Values

Excellence; Discovery & Innovation; Integrity; Diversity & Inclusion; Global Citizenship and Engagement

Syracuse University Policies

Syracuse University has a variety of policies designed to guarantee that students live and study in a community respectful of their needs and those of fellow students. **These statements are an official part of this course syllabus. Some of the most important of these concern:**

University Attendance Policy

Attendance in classes is expected in all courses at Syracuse University. Students are expected to arrive on campus in time to attend the first meeting of all classes for which they are registered. Students who do not attend classes starting with the first scheduled meeting

may be academically withdrawn as not making progress toward degree by failure to attend. Instructors set course-specific policies for absences from scheduled class meetings in their syllabi.

It is a federal requirement that students who do not attend or cease to attend a class to be reported at the time of determination by the faculty. Faculty should use "ESPR" and "MSPR" in Orange Success to alert the Office of the Registrar and the Office of Financial Aid. A grade of NA is posted to any student for whom the Never Attended flag is raised in Orange SUccess. More information regarding Orange SUccess can be found here, at http://orangesuccess.syr.edu/getting-started-2/.

Students should also review the University's religious observance policy and make the required arrangements at the beginning of each semester.

Diversity and Disability
(ensuring that students are aware of their rights and responsibilities in a diverse, inclusive, accessible, bias-free campus community) can be found here, at: https://www.syracuse.edu/life/accessibilitydiversity/.

Religious Observances Notification and Policy
(steps to follow to request accommodations for the observance of religious holidays) can be found here, at:
http://supolicies.syr.edu/studs/religious_observance.htm

Orange SUccess
(tools to access a variety of SU resources, including ways to communicate with advisors and faculty members) can be found here, at:
http://orangesuccess.syr.edu/getting-started-2/

Disability-Related Accommodations
Syracuse University values diversity and inclusion; we are committed to a climate of mutual respect and full participation. There may be aspects of the instruction or design of this course that result in barriers to your inclusion and full participation in this course. I invite any student to meet with me to discuss strategies and/or accommodations (academic adjustments) that may be essential to your success and to collaborate with the Center for Disability Resources (CDR) in this process.

If you would like to discuss disability-accommodations or register with CDR, please visit Center for Disability Resources. Please call (315) 443-4498 or email disabilityresources@syr.edu for more detailed information.

CDR is responsible for coordinating disability-related academic accommodations and will work with the student to develop an access plan. Since academic accommodations may require early planning and generally are not provided retroactively, please contact CDR as soon as possible to begin this process.
https://disabilityresources.syr.edu/

Academic Integrity Policy
Syracuse University's Academic Integrity Policy reflects the high value that we, as a university community, place on honesty in academic work. The policy defines our expectations for academic honesty and holds students accountable for the integrity of all work they submit. Students should understand that it is their responsibility to learn about course-specific expectations, as well as about university-wide academic integrity expectations. The policy governs appropriate citation and use of sources, the integrity of work submitted in exams and assignments, and the veracity of signatures on attendance sheets and other verification of participation in class activities. The policy also prohibits students from submitting the same work in more than one class without receiving written authorization in advance from both instructors. Under the policy, students found in violation are subject to grade sanctions determined by the course instructor and non-grade sanctions determined by the School or College where the course is offered as described in the Violation and Sanction Classification Rubric. SU students are required to read an online summary of the University's academic integrity expectations and provide an electronic signature agreeing to abide by them twice a year during pre-term check-in on MySlice.

The Violation and Sanction Classification Rubric establishes recommended guidelines for the determination of grade penalties by faculty and instructors, while also giving them the discretion to select the grade penalty they believe most suitable, including course failure, regardless of violation level. Any established violation in this course may result in **course failure** regardless of violation level.

Course Evaluations
At the end of the term, the iSchool will ask you to share course feedback through EvaluationKIT [https://coursefeedback.syr.edu]. Log in to EvaluationKIT using your NetID and password. Please take the time to share your feedback about this course and your experience in it; all ratings and comments are completely anonymous. The iSchool carefully reviews your feedback. Our instructors use this feedback to fine-tune course delivery and instruction; our professors of record use this feedback to

fine-tune course content and assignments. All feedback is factored into iSchool decisions about the course, program, and instructor development.

Use of Blackboard

This course involves the use of Syracuse University's Blackboard system as an online tool. The environment is composed of a number of elements that will help you be successful in both your current coursework and your lifelong learning opportunities. To access Blackboard, [http://blackboard.syr.edu] use your Syracuse University NetID & Password. This specific course will appear in your course list.

To search for answers to your Blackboard questions, visit the Answers self-help knowledge [https://answers.syr.edu/display/blackboard01/Blackboard]. If you have problems logging in or need assistance with Blackboard, contact the ITS Service Center at: help@syr.edu or 315.443.2677. The Syracuse University Blackboard support team will assist you.

Note – this section is for instructor guide purposes only. Please *delete this section and statements below if you will not be using prior to distribution to your students!*

Additional statements – add if you will be using in your course(s)

Use of Turnitin

(In order to comply with University policies and federal and state law, instructors who plan to use the software program Turnitin, are required to notify students in advance using syllabus language and one of two methods outlined here: https://provost.syr.edu/important-syllabus-reminders/

The Violation and Sanction Classification Rubric establishes recommended guidelines for the determination of grade penalties by faculty and instructors, while also giving them discretion to select the grade penalty they believe most suitable, including course failure, regardless of violation level. Any established violation in this course may result in course failure regardless of violation level.

Use of Turnitin

"Using websites that charge fees or require uploading of course material (e.g. Chegg, Course Hero) to obtain exam solutions or assignments completed by others and present the work as your own violates academic integrity expectations in this course."
I will take your knowledge of the subject matter of this course and your writing level and style into account in interpreting the originality report. Keep in mind that all papers you submit for this class will become part of the Turnitin.com reference database solely for the purpose of detecting plagiarism of such papers."

This class will use the plagiarism detection and prevention system Turnitin. You will have the option to submit your papers to Turnitin to check that all sources you use have been properly acknowledged and cited before you submit the paper to me. I will also submit all papers you write for this class to Turnitin, which compares submitted documents against documents on the Internet and against student papers submitted to Turnitin at Syracuse University and at other colleges and universities. I will take your knowledge of the subject matter of this course and your writing level and style into account in interpreting the originality report. Keep in mind that all papers you submit for this class will become part of the Turnitin.com reference database solely for the purpose of detecting plagiarism of such papers."

Academic work

Academic work completed during a semester may be used by professors for educational purposes in courses during the semester. Students' registration and continued enrollment constitute consent for this purpose. Before using students' work for educational purposes in subsequent semesters, professors will either request students' permission in writing and render the work anonymous by removing all personal identification.

Policy on Technology Use:

- It is reasonable to expect students to behave as they would in a professional setting (workplace). Students are encouraged to raise their hand (when they have a question, concern, or have a comment (academic and/or based on experience to make) and refrain interrupting the class. Please refer to the 'Netiquette for Students' resource at the ITS Answers page.
- Original class materials (handouts, assignments, tests, etc.) and recordings of class sessions are the intellectual property of the course instructor. You may download these materials for your use in this class. However, you may not provide these materials to other parties (e.g., web sites, social media, other students) without permission. Doing so is a violation of intellectual property law and the student code of conduct.

- Correspondence with the instructor must be done in a professional manner using the appropriate n/etiquette.
- You may reach out to the teaching assistants if you have questions or need help. Aways be respectful and courteous when interacting with them.
- I will be using Blackboard to accept assignment submissions, and to post handouts, supplemental readings, and examples used in class. Assignments and other grades will not be posted on Blackboard – all feedback will be delivered in writing through email regarding your specific feedback.
- No food or drink consumption will be allowed in the room during class (I understand students work and may need a brief respite for breaks or lunch before class. You may be allowed to have an early break if requested).
- I will respond to your emails within 48 hours.
- The use of AIs to solve or answer questions in this course is a violation of academic integrity.

WHAT THIS CLASS IS NOT:

- Not an online or hybrid course. There is no option to take this class online.
- Not a programming course. The idea is you should have a basic understanding of either python, R or Orange.

REPORT FORMAT

Follow the MEAL concept:

Main Idea: In this paragraph, the topic sentence states the concrete claim it advances

Evidence: Your topic sentence claims should be supported by direct quotations or paraphrases from the source material.

Analysis: Explanation and evaluation of the evidence; defining the relevance of the evidence you provided

Lead Out: Conclusion: You are now concluding your paragraph; preparing your reader for the next paragraph (and the next claim).

Remember to always cite your sources!!!

Revisions may occur to this schedule throughout the semester. The latest version is posted on Blackboard.

Class Date	SCHEDULED TOPICS, ASSIGNMENTS AND EXAMS	Due Dates	Readings: (Review before class!)
Week 1:	Topic Module 1: Welcome, Review of Syllabus, Context of Course;		Syllabus
17-Jan	Introduction to Machine Learning	***Complete Profile***	Pages 1-23
	Student Profile Questionnaire Due Sunday by midnight ***Assignment 2 Problem distributed today.***	***22-Jan***	
Week 2:	Topic Module 2: Data Preparation and Exploration;	Intro Presentation 1, Group 1 – 24-Jan Module 2	Pages 44-62
24-Jan	***Assignment 2 Problem distributed***	Assign 1 22-Jan 11:59:00pm	
Week 3:	Topic Module 3: Association Rules; Visualization and Dimensionality Reduction	Intro Presentation 2, Group 2 – 31-Jan Module 3	Pages 262-285
31-Jan	***Assignment 3 Problem distributed***	Assign 2 29-Jan 11:59:00pm	
Week 4:	Topic Module 4: Unsupervised Learning: Clustering;	Intro Presentation 3, Group 3-07 Feb Module 4	Pages 288-311
07-Feb	***Assignment 4 Problem distributed***	Assign 3 **05-Feb**	
Week 5:	Topic Module 5: Supervised Learning: Classification and Regression Trees.	Intro Presentation 4, Group 4 -14 Feb Module 5	Pages 126-135 Pages 148-151 Pages 155-157 Pages 135-143
14-Feb	***Assignment 5 Problem distributed***	Assign 4 **12-Feb**	
Week 6:	Topic Module 6: Supervised Learning: Fine-Tuning and Model Evaluation;	Intro Presentation 5- Group 5 21-Feb Module 6	Pages 313-345
21-Feb		***Assign 5:*** **19-Feb**	
Week 7:	Group Project: Idea Presentation		
28-Feb			
Week 8:	Topic Module 8: Supervised Learning: Naïve Bayes Classifier	Intro Presentation 6- Group 6 07-March Module 8	Pages 89-97

07-March	***Assignment 6 Problem distributed***		
Week 9: **14-March**	**Spring Break-No Classes**		
Week 10:	Topic Module 9: Supervised Learning: KNN, SVM, Ensembled Learning and Random Forest	Intro Presentation 7 Group 7, 21-March Module 9	Pages 66-76
21-March	***Assignment 7 Problem distributed***	***Assign 6 Due*** 19-**March**	
Week 11:	Topic Module 10: Text Mining and NLP;	Intro Presentation 8 Group 8, 21-March Module 10	TBD
28-March	***Assignment 8 Problem distributed***	***Assign 7 Due*** 26-**March**	
Week 12:	Group Project: Preliminary Results		
04-April			Draft report
Week 13 **11-April**	Topic Module 11: Deep Learning ***Assignment 9 Problem distributed***	Assign 8 Due 9 April	Pages 217-229
Week 14 **18-April**		***Group Projects Due: 23-April***	GROUP PROJECT: FINAL PRESENTATIONS
Week 15: **25-April**	***NO CLASS – PROJECT REPORT AND CODE ELECTRONIC SUBMISSIONS DUE TO BLACKBOARD***		

*NOTE: This syllabus and schedule are subject to change in the event of extenuating circumstances! Guest Speakers may be invited to speak to the class during the semester and that may change the schedule for the week.