

Course Syllabus for ISM 6136 Spring Semester 2022

General Information	
Course Number/CRN	ISM 6136/ CRN 13343
Course Title	Predictive Analytics
Semester/Year	Spring/2022
Offering College/Department	Lutgert College of Business (LCOB)/Information Systems and Operations Management (ISOM)
Credit Hours	3
Meeting Times/Location	Class meets on Thursday, 5:30 PM – 8:15 PM, in Lutgert Hall 2212 Important Note: The course could go online anytime during the semester and you should plan and prepare accordingly, i.e., be able to go online if needed.
Is this a DL Course?	No
Method of Delivery	In-classroom lectures and online learning activities
Course URL	http://canvas.fgcu.edu
Prerequisites	QMB 6303 (for level Graduate) or QMB 3302 with minimum grade of C
Instructor Information	
Instructor	Yabing Jiang, PhD
Office Location	Lutgert Hall 2309
Phone Number	239-590-7163
E-Mail Address	yjiang@fgcu.edu
Office Hours	Tuesday & Thursday 11:45AM – 2:15PM: by appointment in LH 2309 or Virtual via Canvas Conference by request
<p>Important Note: All faculty members are required to use Canvas to confirm a student's attendance for each course by the end of the first week of classes. Failure to do so will result in a delay in the disbursement of your financial aid. The confirmation of attendance is required for all students, not only those receiving financial aid. Every student must complete a mandatory activity in Canvas during the first week, which is the Syllabus&Verification of Attendance Quiz.</p>	
Course Information	
Description	“The goal of the course is to introduce students to the current theories, practices, tools and techniques in data, text and web mining. Because many topics and concepts in “mining” are learned most efficiently through hands-on work with data sets, we will spend time with software analyzing and mining content. The goal is to gain a better understanding of techniques and what is involved in mining projects.”
Student Learning Outcomes	<p>After completing this course, students will be able to develop data mining models that address business problems and aid decision-making. In developing the statistical and machine learning models used in data mining, you will learn to address questions such as what methods do you use with what sorts of data and problems, how do the methods work, what are their requirements, strengths, and weaknesses, and how do you assess their performance? You should be able to do the following:</p> <ul style="list-style-type: none"> • Think data-analytically • Assess data analytic project proposals • Conduct data exploration and data visualization analysis and perform data partition, data reduction, and dimension reduction • Understand and apply various data mining algorithms, including classification and regression trees, logistic regression, knn, multiple linear regression, neural network, ensembles and uplift modeling, cluster analysis, and understand text mining techniques and challenges • Evaluate and select data mining models

	<ul style="list-style-type: none"> • Use R (a programming language) and Frontline Analytic Solver Data Mining (ASDM, a GUI) in a spreadsheet environment to perform various data mining tasks • Understand data ethic issues and make ethical data analytics decisions <p>Students will demonstrate mastering of data mining techniques and tasks by completing various discussions, hands-on and written assignments, and quizzes.</p>
<p>Required Materials</p>	<p>Required Textbook: you can choose either option 1 or option 2, depending on your background.</p> <p>Option1- recommended: Data mining for business analytics – concepts, techniques, and applications in R by Galit Shmueli, Peter C. Bruce, Inbal Yahav, Nitin R. Patel, and Kenneth C. Lichtendahl Jr., published by Wiley; ISBN-13: 9781118879368.</p> <p>Option2: Data mining for business analytics – concepts, techniques, and applications with XLMiner by Galit Shmueli, Peter C. Bruce, and Nitin R. Patel, published by Wiley; ISBN-13: 9781118729274.</p> <p>Textbook data files and content updates are presented in the Canvas Course Resource module</p> <p>Required Software:</p> <ul style="list-style-type: none"> • R and RStudio (checkout Canvas for installation instruction) • Additional for option 2: <ul style="list-style-type: none"> ○ Analytic Solver Data Mining (formerly called XLMiner) – checkout installation instructions and options on Canvas (do not use the textbook instruction) ○ Microsoft Excel – desktop Excel for Windows or Office 365 subscription <p>The minimum technology requirements include Web cam, microphone, and speakers. This course will require the use of browser lockdown with webcam (Chromebooks are not compatible).</p>
<p>Online Resources and Supplement</p>	<ul style="list-style-type: none"> • Textbook data files and content updates – in Canvas Course Resource module • R manuals: https://cran.r-project.org/manuals.html • Help with R function or package: https://www.rdocumentation.org/ • Read “R for Data Science”: https://r4ds.had.co.nz/ • Free online course “Introduction to R”: https://www.datacamp.com/courses/free-introduction-to-r • Sams Teach Yourself R in 24 Hours by Andy Nicholls, Richard Pugh, and Aimee Gott; ISBN-10: 0-672-33848-3 • ANALYTIC SOLVER DATA MINING ONLINE HELP • Frontline Analytic Solver videos: Overview of data mining with XLMiner XLMiner – data mining quick video demos
<p>Course Topics</p>	<p>While you have a choice between learning a graphical user interface (GUI) or a programming language, programming is certainly a vital skill for everyone who works intensely with data, and as such learning to program should be on every data scientist’s to-do list. Knowing how to program will make you a more flexible analyst and augment your mastery of data science in every way. While convenient and widely used, a GUI can be limiting in terms of Reproducibility, Automation and Communication.</p> <p>This course covers important data mining concepts and algorithms. In class, we will mainly focus on how to use R (a programming language) to perform various data mining tasks. Please do keep in mind though that this is not a formal R programming course, but rather an intro course focusing on how to implement associated data mining algorithms in R. Tutorial documents and demo videos are provided for students to learn to use Frontline Analytic Solver Data Mining (ASDM, a GUI) in a spreadsheet environment to perform various data mining tasks.</p> <ul style="list-style-type: none"> • General overview of data mining and data mining process—Chapters 1&2 • Data visualization and dimension reduction—Chapters 3&4 • Evaluating predictive performance—Chapter 5 • Supervised learning methods—a subset of Chapters 6-13 including classification and

	<p>regression trees, logistic regression, knn, multiple linear regression, neural network, ensembles and uplift modeling</p> <ul style="list-style-type: none"> • Unsupervised learning method— Chapter 15 cluster analysis and PCA in Chapter 4 • Text mining—Chapter 20 • Additional readings and data science topics
<p>Course Pedagogical Strategy and Teaching Philosophy</p>	<p>My goal as a teacher is to encourage mastery and life-long learning. I want students to develop long-lasting, deep learning such that they evolve from just remembering concepts to being able to develop their understanding on the subjects. I adopt a student-centered teaching approach, helping students develop higher-order thinking skills as defined in Bloom’s digital taxonomy, from developing understanding to being able to apply learning to analyze and solve problems, and eventually being able to evaluate and test alternatives and create new models and solutions.</p> <p>Instructor's Role: The instructor serves as a facilitator and mentor in students’ learning process:</p> <ul style="list-style-type: none"> ✓ Create learning opportunities for the students ✓ Assign readings and challenging assignments ✓ Stimulate participation and assess students' work ✓ Guide and help students throughout the learning process <p>Student's Role: Students (you!) should be active participants in the learning process:</p> <ul style="list-style-type: none"> ✓ Read assigned readings, get familiar with datasets, and practice hands-on exercises ✓ Contribute to class discussions and collaboration activities – actively ask and answer questions ✓ Complete all assignments on time ✓ Actively engage in all learning activities, seek help when needed, and strictly follow <i>Student Code of Conduct</i> <p>My pedagogical strategy is to combine a variety of learning experiences to create circumstances that lead to significant learning in students, such as lectures, discussions, videos, individual and group assignments, hands-on exercises, assessments, and reflection and feedback. Interactive problem-solving exercises and assessments are developed to help students understand the materials and develop the skills necessary to pursue the knowledge-building inquiry.</p> <p>I believe that for graduate courses, learning happens online and offline throughout the week, and interaction is a core component of teaching and learning. As such, this course fosters a collaborative learning environment, in which students work together and negotiate new meanings arising from the separate thoughts of the group. The outcome is a collective thought that goes beyond any of the separate parts. In such a collaborative environment, students take more responsibility on managing and developing the process for producing the product. For maximum success, students are expected to fully participate in the exchange of information, sharing ideas and collaborating with others.</p> <p>I have designed online learning space and activities that encourage student interaction and collaboration and aid student knowledge building. In addition to guided hands-on exercises, discussion forums are provided for students to share and collaborate with classmates on course materials. The in-class lectures will focus on hands-on applications of key concepts and theories, using software and tools to analyze and mine datasets. In class, you are expected to talk through concepts, conduct problem analysis, discuss data mining steps and approaches, and write application code or use application software to solve presented problems. A Google Docs collaboration space is available for the class to work together to create a master file to share and learn. The goals of such group-based activities are to encourage learner-content and learner-learner interactions, promote student engagement and class collaboration, and help students develop deeper understanding of the course subjects. Students have reflected that</p>

their learning is enhanced by contributing to class learning and viewing the responses from their peers and incorporating that into their own understanding.

This course requires students to be proactive learners. Students must dive into the content each week so that they reach their own meaningful learning outcomes as well as the learning objectives for the course. To succeed in this course, students need to be self-disciplined and actively engaged throughout the term. Because student-centered learning is more decentralized and personalized than a traditional course design, assessment is a key to foster consistently engaging and productive learning experiences for students in both the individual and group spaces, and assessment also provides reliable, actionable information about student learning for me. In addition to Q&A discussions and hands-on exercises, I have also designed assessments of various forms, such as Canvas quiz, case study, concept map, and data mining project to assess your understanding of the course materials. Students should think of these learning activities as “an approach to learning rather than something to complete.” Do not expect me to lower my standards as I believe that students all can meet my expectation if they want to. Note that the PowerPoint slides, hands-on exercises and discussion assignments may not cover all concepts, rules, discussions, and examples presented in the textbook, but it is expected that you will read the assigned readings thoroughly and try out examples even if they are not graded.

I have also included private space for students to reflect on the learning that is arising from integrating text, exercises, class discussions, assessments, instructor feedback, and other available resources. Students can use this space to provide feedback for me to further improve on course design and content delivery.

I trust that students will learn from each other and from the materials presented in the course.

Grading Policy

Grading Policy

- A: 90 points or above.
- B+: Less than 90 – 87 points.
- B: Less than 87 – 80 points.
- C+: Less than 80 – 77 points.
- C: Less than 77 – 70 points.
- F: Less than 70 points.

Graded Learning Activities/Assignments	Points Each	Total Points
Individual assignments		
6 assessments of various forms	4 to 6	33
6 Q&A discussions	3	18
Team-based activities		
2 data ethics assignments	4 to 5	9
4 hands-on exercises	5 to 7	23
1 analytics proposal evaluation report	5	5
1 team project	12	12
Class Total		100

All individual assignments and assessments should be the student's own work. The instructor reserves the right to fine-tune the grading of individual and team assignments as appropriate, giving scores not specified in the attached rubrics on Canvas.

No extra credit or additional assignments:

Please be aware that FINAL GRADES FOR THIS COURSE ARE FINAL. No extra credit or additional assignments are available at the end of the course.

	Student-student interaction is an importance element of class learning: adequate contributions to discussion forums and collaborative activities are expected and necessary to get an A for this course.
Attendance and “Credit Hour” statement	<p>Students are expected to attend every class session. It is the student's responsibility to get course notes from fellow students and catch up on class materials should they have to miss a class. Since this is a three-credit course, you should plan to devote an average of <u>nine hours outside of class each week to this course.</u></p> <p>To enforce learning and engage learners, module course activities are purposely assigned throughout the week. While you have some flexibility to complete the assigned materials and activities at your own pace, it is ineffective and unrealistic to complete the module materials in one day.</p>
Policy regarding missed assignments and completion deadlines	<p>A general rule of thumb is work on all assignments, including discussion assignments, as early as possible to minimize the impact of unexpected network or system problems.</p> <ul style="list-style-type: none"> • Per policy, no make-up for missed graded assignments for any reasons except for the authorized and excused absence specified in the university catalog. A student who seeks an authorized or excused absence must submit documentations (such as a physician’s note) to the instructor in a timely manner. See the university catalog for more information. • No late assignments will be accepted for any reasons except the authorized and excused absences specified in the university catalog. A student who seeks an authorized or excused absence must submit documentation (such as a physician’s note) to the instructor in a timely manner. See the university catalog for more information. • Unfortunately, "dropped by the University for not paying the full tuition" is not an authorized and excused absence as specified in the university catalog. • An emergency situation such as unavailability of or inaccessibility to CANVAS due to network problems will be considered by the instructor on a case by case basis. Students must submit documentation (such as a screenshot of error messages) to the instructor in a timely manner.
Statement on e-mail usage in Eagle Mail and/or CANVAS email	In addition to CANVAS posted activities and assignments, we will use Canvas announcement and Eagle-email as the primary communication methods. Please use eagle-email to ask questions. Note that there is a delay getting responses via Canvas’ inbox.
Last Day to withdraw	Be aware that <u>Monday, March 21,</u> is the last day to withdraw from class without academic penalty.
Disclaimer	<p>Assignments, schedules & due dates, instructions, and other course information presented in CANVAS are integral components of the course material and are hereby incorporated as part of this syllabus.</p> <p>The instructor reserves the right to change, modify, alter, or transform any part of this syllabus, provided only that notice thereof is given to or at any party or parties that are thereby affected, subject to the rules and regulations of Florida Gulf Coast University.</p>
University Statements	
<p>Academic Behavior Standards and Academic Dishonesty</p> <p>All students are expected to demonstrate honesty in their academic pursuits. The university policies regarding issues of honesty can be found in the FGCU Student Guidebook under the Student Code of Conduct and Policies and Procedures sections. All students are expected to study this document which outlines their responsibilities and consequences for violations of the policy. The FGCU Student Guidebook is available online at http://studentservices.fgcu.edu/judicialaffairs/new.html.</p> <p>Sanctions for academic dishonesty may include receiving an “F” in this course – FGCU may impose additional penalties. Any incidents of academic dishonesty may be referred to the FGCU Office of Judicial Affairs.</p> <p>Some examples of what is not acceptable:</p> <ul style="list-style-type: none"> • Working with another student & turning in the same work 	

- Emailing or posting your work online (even if it is unintentional) to let someone else “just see how you did it”.
- Copying someone’s assignment or copying something from a book or the Internet.
- Giving or receiving help from someone (in person, online or on the phone) during an assessment.
- Telling or asking someone else what is on an assessment.

Examples of what is **acceptable**:

- Discussing how to approach an assignment with another student.
- Showing someone where they might have made a mistake on an assignment.
- Asking the professor for help.

Minimum Technology Requirements for Students:

Access to and ongoing use of a computer is required for all students. FGCU recommends that each student entering the University acquire computer hardware and software appropriate to his or her degree program. Coursework requires use of a computer and a broadband connection to the Internet. Official University correspondence often is sent via e-mail, and other services are provided that require access through the Internet. Detailed information, including vendor links for discounts to FGCU students, is available at Minimum Technology Requirements for Students. Students with additional questions can contact the following: FGCU Help Desk at helpdesk@fgcu.edu for technology questions; or the Eagles Care! Team at care@fgcu.edu.

University Nondiscrimination Statement

Florida Gulf Coast University is committed to ensuring equity and fairness for all University employees, students, visitors, vendors, contractors and other third parties. As such, the University prohibits discrimination on the bases of race, color, national origin, ethnicity, religion, age, disability, sex (including sexual harassment/assault), gender identity/expression, marital status, sexual orientation, veteran status or genetic predisposition with regard to admissions, employment, programs or other activities operated by the University. This prohibition extends to enforcement of **Title IX** of the Education Amendments of 1972. Questions or complaints should be directed to the Office of Institutional Equity and Compliance (OIEC). The OIEC’s phone number is (239)745-4366; the OIEC email address is OIEC@fgcu.edu.

Disability Accommodations Services

Florida Gulf Coast University, in accordance with the Americans with Disabilities Act and the university’s guiding principles, will provide classroom and academic accommodations to students with documented disabilities. If you need to request an accommodation in this class due to a disability, or you suspect that your academic performance is affected by a disability, please see me or contact the Office of Adaptive Services. The Office of Adaptive Services is located in the Wellness Building. The phone number is 239-590-7956 or Video Phone (VP) 239-243-9453. In addition to classroom and campus accommodations, individuals with disabilities are encouraged to create their personal emergency evacuation plan and FGCU is committed to providing information on emergency notification procedures. You can find information on the emergency exits and Areas of Rescue Assistance for each building, as well as other emergency preparedness materials on the Environmental Health and Safety and University Police Department websites. If you will need assistance in the event of an emergency due to a disability, please contact Adaptive Services for available services and information.

Counseling and Psychological Services (CAPS) provides free counseling and therapy services (including psychiatry) to all FGCU students. Please walk in to the second floor Howard Hall office any weekday between 8:30 and 4:30 to schedule an initial contact appointment. Visit the CAPS website at www.fgcu.edu/caps for more information. CAPS offers a 24/7 Helpline at (239) 745-3277 (EARS).

Student Observance of Religious Holidays

All students at Florida Gulf Coast University have a right to expect that the University will reasonably accommodate their religious observances, practices, and beliefs. Students, upon prior notification to their instructors, shall be excused from class or other scheduled academic activity to observe a religious holy day of their faith. Students shall be permitted a reasonable amount of time to make up the material or activities covered in their absence. Students shall not be penalized due to absence from class or other scheduled academic activity because of religious

observances. Where practicable, major examinations, major assignments, and University ceremonies will not be scheduled on a major religious holy day. A student who is to be excused from class for a religious observance is not required to provide a second party certification of the reason for the absence.

Center for Academic Achievement

The Center for Academic Achievement (CAA) offers academic support services for any FGCU student. The services are at no extra charge to students and include: peer tutoring, Supplemental Instruction, Student Success Workshops, and individualized academic coaching. If you would like to participate in or learn more about these services, please visit the CAA in Library 103. You may also email the CAA at caa@fgcu.edu or call at (239) 590-7906. The CAA website is www.fgcu.edu/caa.

ISM 6136 Spring 2022 Tentative Schedule (Subject to Change)

Module discussions are due by 5:30pm on Thursday
Hands-on assignments are due by 11:59pm on Friday
Module assessments are due by 11:59pm on Sunday
Other types of assignments are due by 11:59pm on Friday

MODULE Weeks/Dates Topics	COURSE LEVEL LEARNING OBJECTIVES/OUTCOMES	MODULE/UNIT LEVEL LEARNING OBJECTIVES/OUTCOMES	MODULE/UNIT ACTIVITY/ASSESSMENT
<p>MODULE 1 Wks 1-2 (Jan 10-23)</p> <ul style="list-style-type: none"> ✓ Introduction and course requirements ✓ Software installation ✓ Introduce yourself and form study groups ✓ Data mining intro – Ch. 1 and Ch. 2 	<ul style="list-style-type: none"> • Think data-analytically 	<ul style="list-style-type: none"> ➤ Identify the fundamental principles underlying data science. ➤ Understand and explain what data science has to offer. ➤ Develop Data-Analytic Thinking. ➤ Define and explain business analytics, data mining, big data, and data science. ➤ Define and explain core ideas in data mining. ➤ Define and explain the data mining process. 	<ul style="list-style-type: none"> ○ Develop a concept map on the assigned article “DATA SCIENCE AND ITS RELATIONSHIP TO BIG DATA AND DATA-DRIVEN DECISION MAKING” (2 points) ○ Syllabus quiz (1 point)
<p>MODULE 2 Wks 2-3 (Jan 17-30)</p> <ul style="list-style-type: none"> ✓ Data visualization - Ch.3 ✓ Dimension reduction - Ch. 4 	<ul style="list-style-type: none"> • Conduct data exploration and data visualization analysis • Perform data partition, data reduction, and dimension reduction 	<ul style="list-style-type: none"> ➤ Explain why you use data visualization in the data mining process. ➤ Describe, explain, and explore when and how to use bar charts, line graphs, scatter plots, boxplots, histograms, and heatmap. ➤ Describe and explain multidimensional visualization by adding variables and by operations such as rescaling, aggregation, and interactivity. ➤ Explain why dimension reduction is a necessary step in the data mining process. ➤ Describe, explain, and explore data exploration using summary statistics, pivot tables, and correlation analysis. ➤ Conduct data exploration and dimension reduction using R or Analytic Solver Data Mining (ASDM). 	<ul style="list-style-type: none"> ○ Discussion forum 1 (3 points) ○ Assessment 1 - Canvas quiz (3 points) ○ Hands-on assignment 1 (6 points) ○ Assessment 2 - Canvas quiz (4 points)

		<ul style="list-style-type: none"> ➤ Describe how to use principal components analysis (PCA) for dimension reduction. ➤ Explain how PCA works. ➤ Describe dimension reduction using regression models and classification/regression trees. 	
<p>MODULE 3 Wks 4-5 (Jan 31 - Feb 13)</p> <ul style="list-style-type: none"> ✓ Performance Evaluation – Ch. 5 ✓ Cluster Analysis – Ch. 15 ✓ Ethical issues for data science professionals 	<ul style="list-style-type: none"> • Evaluate data mining models • Understand and apply data mining algorithms: cluster analysis • Understand data ethic issues 	<ul style="list-style-type: none"> ➤ Describe and explain the measures used to evaluate the performance of predictive models. ➤ Describe and explain how to judge classifier performance with the naïve rule and the confusion matrix. ➤ Describe and explain the terms misclassification error, accuracy, propensities and cutoff value, sensitivity, and specificity. ➤ Explain when and how to use the lift chart and the ROC curve. ➤ Describe how to oversample and how to adjust for the oversampling to assess model performance. ➤ Describe and explain the clustering process and common distance metrics used. ➤ Conduct cluster analysis using R or ASDM. ➤ Recognize the challenges and importance of ethical issues for data science professionals. ➤ Recognize that "acting legally" may not be enough to "act ethically". 	<ul style="list-style-type: none"> ○ Discussion forum 2 (3 points) ○ Assessment 3 - Canvas quiz (5 points) ○ Data mining ethics assignment 1 (4 points)
<p>MODULE 4 Wks 6-7 (Feb 14-27)</p> <ul style="list-style-type: none"> ✓ Multiple linear regression - Ch. 6 ✓ Logistic regression - Ch.10 ✓ Ethical issues for data science professionals 	<ul style="list-style-type: none"> • Understand and apply data mining algorithms: multiple linear regression and logistic regression • Evaluate and select data mining models • Understand data ethic issues and make ethical data analytics decisions 	<ul style="list-style-type: none"> ➤ Describe and explain when to use Multiple Linear Regression models. ➤ Describe and explain how the Multiple Linear Regression model works, its requirements, and its advantages and weaknesses. ➤ Describe and explain variable selection in linear regression. ➤ Describe and explain how to assess the model performance. ➤ Develop Multiple Linear Regression models with R or ASDM. ➤ Describe and explain when to use Logistic Regression models. ➤ Describe and explain how the Logistic Regression model works, its requirements, and its advantages and weaknesses. ➤ Describe and explain variable selection in Logistic regression. ➤ Describe and explain how to assess the model performance. 	<ul style="list-style-type: none"> ○ Discussion forum 3 (3 points) ○ Hands-on assignment 2 (5 points) ○ Assessment 4 (6 points) ○ Data mining ethics assignment 2 (5 points)

		<ul style="list-style-type: none"> ➤ Develop Logistic Regression models with R or ASDM. ➤ Recognize the challenges and importance of ethical issues for data science professionals. ➤ Recognize that "acting legally" may not be enough to "act ethically". ➤ Analyze data ethics situation and possible solutions and apply Kant's categorical imperative, utilitarianism, and other ethical theories to support you making ethical decisions. 	
<p>MODULE 5 Wks 8-10 (Feb 28-Mar 20) (spring break Mar 7-13)</p> <ul style="list-style-type: none"> ✓ Classification and regression tree - Ch. 9 ✓ Neural nets - Ch. 11 	<ul style="list-style-type: none"> • Understand and apply data mining algorithms: classification and regression trees and neural nets • Evaluate and select data mining models 	<ul style="list-style-type: none"> ➤ Describe and explain when to use tree models. ➤ Describe and explain how the tree model works, its requirements, and its advantages and weaknesses. ➤ Describe and explain tree structures and how to classify or predict a new observation. ➤ Describe and explain how to assess the model performance and how to avoid overfitting. ➤ Identify and compose classification rules or prediction rules based on a tree model. ➤ Develop classification tree and regression tree models with R or ASDM. ➤ Describe and explain when to use neural network models. ➤ Describe and explain how the neural network model works, its requirements, and its advantages and weaknesses. ➤ Describe and explain how to classify or predict a new observation. ➤ Describe and explain how to assess the model performance and how to avoid overfitting. ➤ Develop neural network models with R or ASDM. 	<ul style="list-style-type: none"> ○ Discussion forum 4 (3 points) ○ Hands-on assignment 3 (7 points) ○ Assessment 5 - Canvas quiz (6 points)

<p>MODULE 6 Wks 11-12 (Mar 21-Apr 3)</p> <ul style="list-style-type: none"> ✓ K-nearest neighbors (KNN) - Ch.7 ✓ Ensembles and uplift modeling - Ch. 13 	<ul style="list-style-type: none"> • Understand and apply data mining algorithms: knn, ensembles, and uplift modeling • Evaluate and select data mining models • Assess data analytic project proposals 	<ul style="list-style-type: none"> ➤ Describe and explain how the k-Nearest Neighbors (knn) model works, its requirements, and its advantages and weaknesses. ➤ Describe and explain the difference between using knn model for prediction and classification. ➤ Develop knn models with R or ASDM. ➤ Describe and explain the rational behinds ensembles. ➤ Describe and explain ensemble methods for classification and prediction. ➤ Develop ensembles with R or ASDM. ➤ Explain the advantages and weaknesses of ensembles. ➤ Describe and explain the process for building uplift models. ➤ Develop uplift models with R or ASDM. ➤ Assess sample data analytics proposal, applying the fundamental principles and techniques of data mining. 	<ul style="list-style-type: none"> ○ Discussion forum 5 (3 points) ○ Hands-on assignment 4 (5 points) ○ Evaluate data analytic project proposal 1: collaborative Google Doc (0 point)
<p>MODULE 7 Wks 13-16 (Apr 4-May 2)</p> <ul style="list-style-type: none"> ✓ Assess data analytic project proposals ✓ Text mining - Ch. 20 ✓ Course conclusion ✓ Team project 	<ul style="list-style-type: none"> • Assess data analytic project proposals • Understand and apply various data mining algorithms • Evaluate and select data mining models • Understand text mining techniques and challenges 	<ul style="list-style-type: none"> ➤ Assess sample data analytics proposal, applying the fundamental principles and techniques of data mining. ➤ Describe applications of text mining. ➤ Explain how to represent text in a spreadsheet. ➤ Describe the challenges of text mining. ➤ Describe and explain techniques for preprocessing the text. ➤ Describe and explain latent semantic analysis. ➤ Define and solve a real-world problem. 	<ul style="list-style-type: none"> ○ Evaluate data analytic project proposal 1: collaborative Google Doc (0 point) ○ Evaluate data analytic project proposal 2: report (5 points) ○ Assessment 6 – Canva quiz (6 points) ○ Discussion forum 6 (3 points) ○ Team project (12 points)