

Course Syllabus Part II

DSC 630 Predictive Analytics

3 Credit Hours

Course Resources

Course Text:

Applied Predictive Analytics: Principles and Techniques for the Professional Data Analyst
David Abbott
ISBN: 978-1118727966

Predictive Analytics: The Power to Predict Who Will Click, Buy, Lie, or Die
Eric Siegel
January 20, 2016
ISBN: 9781119145677

Required Resources:

In this course, you will need to be able to:

- Access the Internet.
- Access Cyberactive.
- Collaborate Online via Video and Voice.
- Collaborate while writing a single document.
- Submit a Word Document.
- Use Microsoft PowerPoint or Adobe Illustrator to create a presentation.

Supplemental (not required) Resources:

An Introduction to Statistical Learning with Applications in R
Gareth James
ISBN: 9781461471370, 1461471370

Course Schedule

Week	Topic	Discussion	Milestone	Status Report	Assignments	Peer Review	Applied Predictive Analytics Chapter	Predictive Analytics Chapter
1	Overview	1.1		1.2	1.3		1 & 2	Intro
2	Data Understanding	2.1	2.2	2.3		2.4	3	1
3	Data Preparation	3.1		3.2	3.3		4	3
4	Descriptive Modeling	4.1		4.2		4.3	5 & 6	4
5	Case Study	5.1	5.2	5.3	5.4		13 (YMCA)	2
6	Model Interpretation	6.1		6.2		6.3	7	5
7	Predictive Modeling	7.1		7.2	7.3		8	
8	Model Assessment	8.1		8.2		8.3	9	
9	Model Ensembles	9.1	9.2	9.3	9.4		10	6

10	Text Mining	10.1		10.2		10.3	11	7
11	Case Study	11.1		11.2	11.3		13 (Help desk)	
12	Final Projects	12.1	12.2	12.3		12.4		

Course Activities

Discussion

Each week, you will be making 1 discussion post, 2 replies to others, and one reply to someone who responded to your original post in the specific forum. Read other people's posts and respond to at least two. Please try to respond to posts that do not already have many responses. Next, reply to at least one person who responded to your original post. If no one has replied to you by the reply due-date, you may post a reply to a third person.

Each post must be a minimum of 500 words and contain at least one credible source. These responses should be "substantive" which means more than, "Neat!" or "Good job!" They should also not contain jargon or be a post that boils down to you reposting the same thing you're commenting on in a different way.

Assignments

There will be 6 homework assignments throughout the duration of the course. The assignments are intended to provide students with the opportunity to practice analyzing datasets, and evaluating and interpreting data. Late assignments will be accepted with 10% deducted from the value of the assignment each day the homework is turned in late. Students may consult with each other on the homework but each student must write up (and code up if necessary) his or her own assignment.

Course Project

Project Milestones

- Milestone 1 – Team Information and project proposal (Week 2)
- Milestone 2 – Preliminary Analysis (Week 5)
- Milestone 3 – Project Status (Week 9)
- Milestone 4 – Final project paper and presentation (Week 12)

The project will be done in teams of maximum 3 students. Students are also welcomed to work in pairs or even individually. For students working in teams, it is expected that all team members will contribute equally and that everyone will take the opportunity to learn from each other. Students will identify a business problem to address through predictive analytics. The goal is to select appropriate models and model specifications, and apply the respective methods to enhance data-driven decision making related to the business problem. Students will identify potential use of predictive analytics, formulate the problem, identify the right sources of data, analyze data, and prescribe actions to improve not only the process of decision making but also the outcome of decisions.

The final paper should be 8-10 pages in length not including figures and tables. Start with a one paragraph abstract, followed by an intro/background of the problem, methods, results,

discussion/conclusion and acknowledgments, references, in that order. Clearly state the problem you have chosen to investigate. List the resources you used to come up with the project and reference all sources you used to complete the project. Margins should be 1-inch top, bottom, left, and right. Use any font that is suitable for a professional paper and use 12-point type.

Course Presentation

Each group should prepare and deliver a final presentation on their data analytics project. The final presentation should reflect a thoughtful synthesis and use of the concepts and methods taught throughout the course. Presentations should be 15-20 minutes in length. The presentation will be recorded and submitted through blackboard.

Peer Evaluation

The purpose of the peer evaluation is to identify group members' roles in and contribution to all group assignments. Students will be asked to rate group members' contributions to the group project.

Status Reports

Every week, you will be required to post the status of your team/individual term project. The following items must be included; tasks accomplished this week, problems or issues encountered in the analytics task, possible ideas for solving issues and work plan for next week.

Grade Breakdown/Criteria

<u>Grade Component</u>	<u>Percentage</u>	<u>Point Value</u>	<u>Number of Times</u>	<u>Total</u>
Discussions	10	10	12	120
Term Project	55			660
Milestones		120	3	
Final Report		300	1	
Case Study Reviews	15	30	6	180
Peer Evaluations	10	10	6	60
Status Reports	10	5	12	60
Total Points				1080

Late Work

Late work is not accepted unless arrangements are made with the instructor for very special, unavoidable circumstances. If you do not alert the professor before or shortly after something that will make you late, the chances of special arrangements are much lower. If in doubt, please email as soon as possible.

Participation

Students are expected to login often and contribute to the class on a regular basis, including posting to the discussion board, submitting assignments, and participating in group activities as required. If you

have specific participation requirements related to your educational funding or student status, you are expected to monitor your own participation to ensure you are in compliance with those requirements.

Expectations for Students

- Students should expect to spend approximately 10-15 hours per week to complete the activities and assignments in this course.
 - Students will log in as often as needed to complete their assignments and progress through the course.
 - Students will treat their classmates and the instructor with respect and courtesy.
 - Students are responsible for keeping current with the reading assignments and coming to class prepared to discuss the work assigned.
 - Students are responsible for knowing what assignments are due and when.
 - Students will submit only their own work and will not commit plagiarism or other acts of academic dishonesty.
 - Students will contact the instructor as soon as personal problems arise that may affect the student's ability to complete assignments on time.
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Expectations for Faculty

- The instructor will treat all students with respect and courtesy.
 - The instructor will make grading criteria clear and follow the criteria scrupulously in evaluating student work.
 - The instructor will provide feedback about student work within 6 days of due dates (or 24 hours prior to the next due date)—feedback that helps the student learn and improve.
 - The instructor will respond to all student messages within 48 hours.
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