

## Course Syllabus Part II

### DSC 630 Predictive Analytics

### 3 Credit Hours

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#### 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

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#### Course Schedule

Week	Topic	Discussion/ Participation	Milestone	Assign- ments	Peer Review/ Group Evalua- tion	Extra Credit	Applied Predictive Analytics Chapter	Predictive Analytics Chapter
1	Introduction to Predictive Analytics	X	X	X			1 & 2	Intro
2	Data Understanding	X	X				3	1

3	Data Preparation	X		X	X		4	3
4	Descriptive Modeling	X		X			5 & 6	4
5	Case Study	X		X			13 (YMCA)	2
6	Model Interpretation	X	X				7	5
7	Predictive Modeling	X			X		8	
8	Time Series and Model Ensembles	X	X	X			9 & 10	6
9	Recommender Systems	X		X	X		11	7
10	Final Projects	X	X			X	12 & 13 (Help desk)	

## Course Activities

### Discussion/Participation

Every week you will be required to make 10 posts via an online platform. The goal is to simulate real world discussion and participation – there will not be formal posts required or required topics to discuss. There may be optional topics provided to start discussion, however, sharing information, troubleshooting, asking questions/feedback, etc. will be the primary focus for discussion/participation. Discussion/Participation will be graded as follows:

Number of Posts	Percentage
0	0%
5	50%
10	100%

### 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

- Week 1: Milestone 1 Due (Team Information/Communication Plan)
- Week 2: Milestone 2 Due (Data Selection and Project Proposal)
- Week 3: Milestone 2 Group Evaluation or Peer Review

- Week 6: Milestone 3 Due (Preliminary Analysis)
- Week 7: Milestone 3 Group Evaluation or Peer Review
- Week 8: Milestone 4 Due (Finalizing Your Results)
- Week 9: Milestone 4 Group Evaluation or Peer Review
- Week 10: Milestone 5: Final Project Submission (Final Paper and Presentation – Due Saturday!)

The project will be done in teams of 3 students max or independently. 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. There will be 3 peer reviews due throughout the term evaluating team members for those working in a group. For students working independently, there will be a separate review to complete based on another classmates' independent project.

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.

Note that you need to submit two items for your final project submission. The paper should include an introduction, a summary of your methods and results, and a conclusion as outlined above. In addition, submit an audio/video presentation with slides summarizing your project. A good goal for the length of your presentation is 10-15 minutes. Think about this as a high-level presentation you would give to your CEO.

### Extra Credit

You will receive 10 points extra credit for completing the quiz at the end of the course.

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### Grade Breakdown/Criteria

<u>Grade Component</u>	<u>Point Value</u>	<u>Number of Times</u>	<u>Total</u>
Discussion/Participation	20	10 Posts per Week for 10 Weeks	200
Course Project Milestones	60	4 Per Term	240
Final Project Submission	300	1 Per Term	300
Assignments	60	6 Per Term	360
Peer Reviews/ Group Evaluations	20	3 Per Term	60
<b>Total Points</b>			<b>1160</b>

### **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.

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### **Participation**

Students are required to login often and contribute to the class on a regular basis, including posting in the online platform, 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.

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### **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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