

## **Analytics in Action: DA 320 Predictive Analytics**

### **1. General Information:**

Faculty: Ivania Larson  
Office:  
Email: [ilarson2@depaul.edu](mailto:ilarson2@depaul.edu)  
Phone: (630)746-1834  
Office Hours: By appointment

Location: Loop Campus, Chicago

Day/Time: September 09, 2016 - 5:30pm – 9pm

### **2. Course Description and Faculty Biography:**

#### *Description:*

In this course, students will build decision models that predict outcomes based on various inputs and assumptions. Major topics include applications of regression analysis and forecasting, exponential smoothing, logistic regression, and decision trees simulations. Students will be expected to have a good understanding of time series data to determine the appropriate models for different problems through sound reasoning, ask appropriate questions for decision-making, and analyze the results.

Pre-requisites: Foundations of Analytics and IT 223 Data Analysis.

#### *Faculty Biography:*

Ivania Larson has more than 15 years' experience in the IT industry working for IBM. Throughout her career, she worked at several level of the organization from system administrator, developer, consulting all the way to management. She has hands-on experience leading global teams, managing global teams, implementing IT automation and tools, managing full project life cycle driving continued collaboration and integration across IBM's 13 strategic delivery centers through the deployment of several quality programs. Her knowledge extended to various industries such Financial, Industrial including Auto Manufacture and Appliances.

### **3. Competencies:**

S1X, FX, DA. Can be taken for both competencies or DA section only.

### **4. Outcomes**

By the end of this course, students will be able to:

- Articulate the role of big data and data analytics technologies in the business organisation and business processes.
- Describe various concepts and how predict models can be apply to support businesses
- Argue about how predictive analytics can be used to support business growth.
- Discuss the challenges involved in manage data.

### **5. Learning Experience**

Attendance is critical in completing the course. Absence from more than two classes can lead to a failing grade. Students should contact the instructor if he/she anticipates missing a class. Students are responsible for reviewing materials posted on D2L.

Students are expected to be punctual and participate in each scheduled class session. Students must complete all assignments on time. All work must be submitted on D2L prior to the due date for timely feedback.

### **6. Evidence Students will submit and competency:**

Grades are based on deliverables and class participation. Students will work in groups. For L7 students, there will be a peer evaluation at the end of the course.

#### *Mid-term quiz*

Students will complete a quiz that covers the course content.

#### *Group Project*

The group project will comprise a project proposal and group presentation.

#### *Homework*

These are a series of exercises that will be assigned in class.

#### *Research paper*

Students will submit a research paper as a group that covers the course contents.

#### *Participation and attendance:*

This is required for all competencies. Per SNL's policies, students are expected to be present in all classes barring unforeseen circumstances and official/professionally-related absences due to

necessity. In addition, students are expected to participate in class discussions to facilitate an exchange of ideas and an effective learning experience for everyone. Class participation also includes substantive contributions to online discussions on D2L (where applicable) as well as completion of all ungraded recap exercises (where applicable) on D2L. Individual posts on discussion boards will not be graded. However, the quality of overall engagement in each topic will be assessed at the end of the quarter. Recap exercises comprise conceptual questions that are auto-graded on D2L. Feedback will be provided upon completion. They serve to reinforce concepts discussed in class and should be completed outside class prior to the end of the Quarter.

All work must be completed individually, although students may discuss and work together. The DePaul Student Handbook defines plagiarism as follows: "Plagiarism includes but is not limited to the following: (a) The direct copying of any source, such as written and verbal material, computer files, audio disks, video programs or musical scores, whether published or unpublished, in whole or in part, without proper acknowledgement that it is someone else's. (b) Copying of any source in whole or in part with only minor changes in wording or syntax even with acknowledgement. (c) Submitting as one's own work, a report, examination paper, computer file, lab report or other assignment, which has been prepared by someone else. This includes research papers purchased from any other person or agency. (d) The paraphrasing of another's work or ideas without proper acknowledgment." Plagiarism will result in a failure of the assignment or possibly of the course. If you are unsure of how to cite a source, ask!

Completed work must be uploaded on D2L. This includes all assignments. The due dates for each of the assignment are given when they are assigned. All late submissions without an approved extension will receive a 5% penalty for each day late.

Pertaining to the deliverables, the quality of submissions will be measured using a rubric for the respective assignments. However, some aspects may involve subjective evaluation, particularly the written assignments. As much as possible, the rubric will frame the assessments. All assignments will be evaluated on evidence of learning, depth of analysis, organisation and thoroughness. They should demonstrate the consideration of key issues and critical thinking. All written assignments should be typed, single-spaced, and contain a bibliography of cited sources and appropriate footnotes. All ideas, quotes and statistics borrowed from another author must be cited. If external content (such as facts or data) are used, please be sure to cite the corresponding authorities. The use of APA style as a formal citation guideline would be ideal. Resources are available on the assignments

Note that depending on the nature of the assignment, a formal bibliography is not always necessary. Please refer to the assignment descriptions for the requirements.

## **7. Criteria for Assessment:**

Assignments:	
Homework	10%
Group Project	40%
Research Paper	30%
Quiz	10%
Participation and Attendance	10%

Total

100%

*Grade descriptions<sup>1</sup>*

Grade	Point	Grade Range	Grade Scale
A	4.0	94% +	The instructor judged the student to have accomplished the stated objectives of the course in an EXCELLENT manner.
A-	3.7	90 – 93.99%	
B+	3.3	87 – 89.99%	
B	3.0	83 – 86.99%	The instructor judged the student to have accomplished the stated objectives of the course in a VERY GOOD manner.
B-	2.7	80 – 82.99%	
C+	2.3	77 – 79.99%	
C	2.0	73 – 76.99%	The instructor judged the student to have accomplished the stated objectives of the course in a SATISFACTORY manner
C-	1.7	70 – 72.99%	
D+	1.3	67 – 69.99%	The instructor judged the student to have accomplished the stated objectives of the course in a POOR manner. (A grade of D will not fulfil the requirements in a major field of concentration.)
D	1.0	63 – 66.99%	
D-	0.7	60 – 62.99%	
F	0.0	Less than 60%	The instructor judged the student NOT to have accomplished the stated objectives of the course.
W	0.0		Withdrawal from the course initiated by the student after the Last Day to Drop With No Penalty and before the Withdrawal Deadline. The W grade is automatically recorded on the

<sup>1</sup> For all other grades not listed, please refer to DePaul University's website for details and descriptions (<http://www.depaul.edu/university-catalog/academic-handbooks/undergraduate/undergraduate-academic-policies/Pages/grades.aspx>)

			student's transcript once it has been processed.
IN			Temporary grade indicating that, following a request by the student, the instructor has given his or her permission for the student to receive an incomplete grade. In order to receive an IN grade, the student must have a) a satisfactory record in the work already completed for the course, b) encountered unusual or unforeseeable circumstances which prevent him/her from completing the course requirements by the end of the term, and c) applied to the instructor for permission to receive an IN. Please see the <i>Grades, Incomplete (IN) and Research (R) Expiration Policy</i> page in this handbook for additional information

All course deliverables must be submitted to receive a passing grade. Unfinished work or work requiring revision will be given an Incomplete (IN) grade. In order to qualify for the IN, students must have regularly attended class, and must have completed three-fourths of assignments. In order for a student to have an incomplete (IN) grade granted in this course, there must be a significant extenuating circumstance evidenced by the student (e.g., medical and/or significant personal issues). The student will need to initiate and file an SNL Incomplete grade contract before the final session of the course to receive an incomplete grade. Students are strongly advised to review the university deadlines for withdrawal without tuition refund and the implications for financial aid and grades.

## 8. Class Schedule<sup>2</sup>:

Date	Class #	Activities	Assignments Due
9/8/2016	Week 1	Introduction to data analytics, framework and SPSS	
9/15/2016	Week 2	Preparing data for Modeling	Homework 1
9/22/2016	Week 3	Decision trees/rules induction	Homework 2
9/29/2016	Week 4	Neural Networks	Homework 3
10/6/2016	Week 5	Linear Regression	Submit Project Proposal
10/13/2016	Week 6	Regression for survival data	Quiz
10/20/2016	Week 7	Time series analysis	Homework 4
10/27/2016	Week 8	Logistic regression	Homework 5
11/3/2016	Week 9	Discriminant Analysis	Homework 6
11/10/2016	Week 10	Project presentation and workshop summary	Project Presentation
11/17/2016	Final		Submit Research Paper

## 9. Addenda

### *DePaul University Academic Integrity Policy*

DePaul University is a learning community that fosters the pursuit of knowledge and the transmission of ideas within a context that emphasises a sense of responsibility for oneself, for others and for society at large. Violations of academic integrity, in any of their forms, are, therefore, detrimental to the values of DePaul, to the students' own development as responsible members of society, and to the pursuit of knowledge and the transmission of ideas. Violations include but are not limited to the following categories: cheating; plagiarism; fabrication; falsification or sabotage of research data; destruction or misuse of the university's academic resources; alteration or falsification of academic records; and academic misconduct. Conduct that is punishable under the Academic Integrity Policy could result in additional disciplinary actions by other university officials and possible civil or criminal prosecution. Please refer to your Student Handbook or visit <http://studentaffairs.depaul.edu/homehandbook.html> for further details.

### *DePaul University Incomplete Policy*

Undergraduate and graduate students will have up to two quarters to complete an incomplete. At the end of the second quarter (excluding summer) following the term in which the incomplete grade was assigned, remaining incompletes will automatically convert to "F" grades. In the case of the Law School incompletes must be completed by the end of the semester following the one in which the incomplete was assigned. Ordinarily no incomplete grade may be completed after the grace period has expired. Instructors may not change incomplete grades after the end of the grace period without the permission of a college-based Exceptions Committee. This policy applies to undergraduate, graduate and professional programs. NOTE: In the case of a student who has applied for graduation and who has been approved for an Incomplete in his or her

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<sup>2</sup> Class schedules are tentative and are subject to changes as necessary.

final term, the incomplete must be resolved within the four-week grace period before final degree certification.

n.b. The SNL student who wishes to receive the grade of IN must formally request in writing that the instructor issue this grade. This request must be made before the end of the quarter in which the student is enrolled in a course.

*For Students Who Need Accommodations Based on the Impact of a Disability*

Students who feel they may need an accommodation based on the impact of a disability should contact the instructor privately to discuss their specific needs. Please contact your instructor as early as possible in the quarter, preferably within the first week or two of the course. All discussion will remain confidential. Please be sure to contact the following office for additional information:

Center for Students with Disabilities (CSD)  
Lincoln Park Campus: Student Center 370. (773) 325-1677  
Loop Campus: Lewis Center 1420. (312) 362-8002  
[csd@depaul.edu](mailto:csd@depaul.edu)

*Writing Help*

For help with organizing your ideas, grammar, citing sources, avoiding plagiarism, sample SNL assignments and much more, see the Writing Guide for SNL Students at <http://snl.depaul.edu/writing/index.html>. For on-campus and online tutoring, see the DePaul University Writing Centers at <http://condor.depaul.edu/~writing/>.

[In addition, consider adding the Writing Centers' syllabus supplement available here <http://condor.depaul.edu/writing/instructors/syllabus.html>]