Northeastern University
College of Professional Studies
Course Syllabus

ALY6050 – Introduction to Enterprise Analytics
Term: Winter B 2021
Dates: March 1, 2021 – April 10, 2021

Instructor Name: Dr. Tamir Hegazy
Instructor's E-mail: t.hegazy@northeastern.edu
Instructor's Phone Number: (404)-723-2307
Instructor Office Hours: By appointment

Required Text(s)/Software/Tools:

Course Textbook (required): *Statistics, Data Analysis, and Decision Modeling*, 5th Edition, James R. Evans, Pearson Publishing, ISBN: 9780132744287

Software (required):

- Microsoft Office 2016 (Excel, Word, PowerPoint)

Course Prerequisites

ALY-6010
Restrictions: Must be enrolled in one of the following Levels: CPS – Graduate

Course Description

Offers an overview of analytics concepts and practices across a diverse range of industries and organizational contexts. Case studies of successful analytics initiatives from fields including retail, government, education, and the arts provide opportunities to examine how the collection and analysis of data impacts decision making within a variety of contexts. Offers students an opportunity to engage with the current theories, practices, and debates in the field of analytics to critically examine its practice. Distinctions among specific analytical techniques and tools, including the use of Excel for fundamental data analysis methods, provide context essential to preparing students to engage more deeply with the individual courses that follow.

Course Outcomes

Upon the successful completion of this course, students will be able to:

1. Drive business strategies and actions through extensive use of data, statistical and quantitative analysis, exploratory and predictive data analysis, and fact-based decision making.
2. Analyze decision-making problems and perform risk analysis.
3. Perform simulations and create statistical analysis of simulation results.

4. Apply the most appropriate forecasting method for the properties of the available data.
5. Solve linear programming problems.
6. Create sensitivity analysis on linear programming model parameters.
7. Solve integer and binary linear programming problems.
8. Solve non-linear optimization problems.
9. Apply optimization models to areas such as marketing, retail, manufacturing, finance, engineering, business, and managerial decision-making.
10. Develop solutions of transportation, transshipment, and network problems.
11. Utilize quantitative techniques for strategic business decision-making.
12. Apply the methods of enterprise analytics to a few widely-practiced data analytics areas, such as marketing analytics, retail analytics, financial analytics, people analytics, as well as general industry practices in end-to-end analytics development cycles, including data management, data engineering, analytics modeling, and strategy development.
13. Communicate issues in enterprise analytics.

Course Methodology

Each week, you will be expected to:

1. Review the week's learning objectives. The average recommended time spent is 30 minutes.
2. Complete all assigned readings (2-3 hours).
3. Complete all lecture materials for the week (2-3 hours).
4. Participate in the Discussion Board (2-3 hours)
5. Complete and submit all assignments and tests by the due dates (5 hours or more).

Participation/Discussion Board

During each week, learners are required to post a “primary response” by Thursday, 11:59 P.M. (Eastern), and a minimum of two replies to the primary posts of other students by Sunday, 11:59 P.M. (Eastern) – a minimum of three postings for each discussion question. Primary responses that are posted after Thursday will not be accepted. Note that the replies for the week 6 discussions are due by the Saturday of week 6 by 11:59 P.M. (Eastern)

- The primary response should consist of a minimum of 250 words, and each reply should contain at least 80 words.
- Learners are expected to post their responses to the weekly discussion questions on at least two different days of the week so that there will be enough time for fruitful correspondences with the instructor and/or with other learners throughout the week.
- Last minute postings that are empty of substance and essence will result in significant point deductions.
- When responding to the Discussion forum, learners should support their comments with logical reasoning and with the techniques of data analysis. Simply stating that agree or disagree without further describing why will not be accepted as a valid discussion.
- Copying and pasting from any source into the discussion board is considered a form of plagiarism and is unacceptable.
- A minimum of one reference should be cited in each primary response.

- Each weekly discussion is worth 40 points (4% of the course grade). The collection of six weekly discussions constitutes 24% of the course grade.
- All discussions will be graded by using the following criteria:
  (i) Comprehension (20%)
  (ii) Participation (40%)
  (iii) Critical Thinking (20%)
  (iv) Writing Mechanics and Citation (20%)

Communication/Submission of Work

- To communicate your content-oriented inquiries and questions, please use the discussion board. For private questions, use Email.
- To view each assignment, go to the Assignment folder, and click on the View/Complete Assignment link.
- Use the View/Complete Assignment link, attach your completed assignment files (often consisting of an Excel workbook and a Word document), and click Submit to turn them in to me.
- Once your assignment has been graded, you will be able to view the grade and feedback I have provided by clicking on My Grades in the Tools module from the Northeastern University Online Campus tab.
- Completed assignments that are sent to me by Emails will not be accepted.

Grading/Evaluation Standards

Assignment	Grade	Weight in Course Grade
6 Weekly Discussions	240 points (40 points each)	24%
6 Weekly Projects/Quizzes	660 points (110 points each)	66%
Final Assessment	100 points	10%
Total:	1000 points	100%

Weekly Projects and Quizzes:

The submission of each weekly project will consist of an Excel workbook and a Word document (an R script file may replace the Excel workbook if R has been used in the project)– a minimum of two files that have been submitted as attachments. For each weekly project, students should complete their analytic work in an Excel workbook, and submit a Word document describing the project and their findings. The Word document should consist of a title page (including student's name, assignment title, course number and title, the current academic term, instructor's name, and the assignment completion date), and a reference page.

In addition to the submissions outlined above, students are required to take a quiz each week. The weekly quiz contains questions on the material covered on the respective week, in addition to project-related questions. The grade of this section will be mainly based on the quiz. Answers in the quiz will be checked against submitted documents to ensure the originality/legitimacy of the answers. Mismatches between submitted project work/write-up and quiz answers may lead to point deduction. Lack of or late submission of the project or write-up will lead manual reduction of the quiz grade. Quizzes are timed and students will have a maximum of two attempts per quiz. The quiz grade will be the average of the graded attempts.

Final Assessment:

Students will complete a final assessment exam during week 6 of the course. The final assessment exam is timed, and may consist of a number of multiple-choice, free response, or essay questions. The final assessment should be completed by the last day of the class.

Late Turn-in Policy:

You should plan to submit all your assignments (discussions, projects, quizzes, etc.) by the first Sunday that follows the class day. However, in order to account for any unplanned circumstances and to simplify the grading process, the deadline of the assignment of Week *n* is automatically extended to the day after the class of Week *n*+1, except for the last week, where the deadline is the last Saturday of the course. Any submission after the abovementioned deadlines will not be allowed or graded.

At the discretion of the instructor, exceptions to the rules above may be provided in the case of documented, exceptional emergencies.

Grading Scale:

Percentage Grade	Letter Grade
95 - 100	A
90 – 94.9	A-
87 – 89.9	B+
84 – 86.9	B
80 – 83.9	B-
77 – 79.9	C+
74 – 76.9	C
70 – 73.9	C-
69.9 or below	F

Class Schedule & Topical Outline

Week	Dates	Topic	Assignments
1	1/19 – 1/24	Review of Probability & Statistics (Probability Distributions)	Module 1 Discussion, Module 1 Project, Module 1 Quiz
2	1/25 – 1/31	Simulation	Module 2 Discussion, Module 2 Project, Module 2 Quiz
3	2/1 – 2/7	Regression & Forecasting	Module 3 Discussion, Module 3 Project, Module 3 Quiz
4	2/8 – 2/14	Decision Modeling and Risk Analysis	Module 4 Discussion, Module 4 Project, Module 4 Quiz
5	2/15 – 2/21	Optimization I – Linear and Integer Programming and Applications	Module 5 Discussion, Module 5 Project, Module 5 Quiz
6	2/22 – 2/27	Optimization II –Nonlinear Programming, and Applications	Module 6 Discussion, Module 6 Project, Module 6 Quiz, Final Assessment

Academic Integrity Policy

The University views academic dishonesty as one of the most serious offenses that a student can commit while in college and imposes appropriate punitive sanctions on violators. Here are some examples of academic dishonesty. While this is not an all-inclusive list, we hope this will help you to understand some of the things instructors look for. The following is excerpted from the University's policy on academic integrity; the complete policy is available on the Office of Student Conduct and Conflict Resolution web page.

Cheating – intentionally using or attempting to use unauthorized materials, information or study aids in an academic exercise

Fabrication – intentional and unauthorized falsification, misrepresentation, or invention of any data, or citation in an academic exercise

Plagiarism – intentionally representing the words, ideas, or data of another as one's own in any academic exercise without providing proper citation

Unauthorized collaboration – instances when students submit individual academic works that are substantially similar to one another; while several students may have the same source material, the analysis, interpretation, and reporting of the data must be each individual's independent work.

Participation in academically dishonest activities – any action taken by a student with the intent of gaining an unfair advantage

Facilitating academic dishonesty – intentionally or knowingly helping or attempting to violate any provision of this policy

For more information on Academic Integrity, including examples, please refer to the Office of Student Conduct and Conflict Resolution web page.

College of Professional Studies Policies and Procedures

For comprehensive information, please see the Registrar University Catalogs page as well as the Student Resources page of the Northeastern University College of Professional Studies website.

Student Accommodations

Northeastern University and the Disability Resource Center (DRC) are committed to providing disability services that enable students who qualify under Section 504 of the Rehabilitation Act and the Americans with Disabilities Act Amendments Act (ADAAA) to participate fully in the activities of the university. To receive accommodations through the DRC, students must provide appropriate documentation that demonstrates a current substantially limiting disability.

For more information, visit the Disability Resource Center Getting Started page.

End-of-Course Evaluation Surveys

Your feedback regarding your educational experience in this class is very important to the College of Professional Studies. Your comments will make a difference in the future planning and presentation of our curriculum.

At the end of this class, please take the time to complete the evaluation survey at **the NEU EvaluationKit website** . Your survey responses are **completely confidential**. Surveys will be open for the last two weeks of the class. An email will be sent to your HuskyMail account notifying you when surveys are available.

Online Proctoring

In this class, some tests may be administered remotely by an online authentication and proctoring service called Examity®, which gives you the flexibility to schedule exams at your convenience and take them wherever you want.

To prepare for using Examity®, you will need to meet the following technical requirements:

- Working webcam and microphone which can be tested at www.testmycam.net
- An Internet connection of at least 3Mbps (www.speedtest.net)
- Chrome/ Mozilla/ Safari/ Internet Explorer/ Microsoft Edge browser
- Up to date Operating system (Windows or Mac OS)

Please click on the link below to run an automated systems check:
Examity Computer Readiness Check

If you do not pass the systems check or have any questions or concerns, you can contact Examity's® technical support team 24/7 via email at support@examity.com or phone at (855) 392-6489. Please

tell your instructor immediately if your computer/equipment does not meet the standard to use online proctoring.

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