Course Syllabus

I. Course Information

Data Quality and Governance: January 17, 2018 – March 27, 2018
RSAN-150 1DL, Spring 1 2018
Distance Learning Course Week: Wednesday through Tuesday

Instructor: Travis Dawry

You can contact me through discussion forums on our course web site: by replying to any of my posted messages, posting a new topic on the Questions and Comments forum, or posting to one of the various forums established for each class assignment. To reach me privately, please use the Private Forum. The Private Forum is the method I will use to contact you privately, and is always preferred over email.

Syllabus Overview

This syllabus contains all relevant information about the course: its objectives and outcomes, the grading criteria, the texts and other materials of instruction, weekly objectives, outcomes, readings, assignments, and due dates. Consider this your roadmap for the course. Please read through the syllabus carefully and feel free to share any questions that you may have.

Course Description

This course will provide an overview of data governance, including building a governance infrastructure with organizational management, roles and responsibilities, stewardship, governance communications, regulatory compliance, privacy concerns, data security, and risk management. Data quality will be addressed as a continuous issue in data management, and the challenge it poses as the volumes of data increase and the uses for data expand. This course will utilize case studies, trends, techniques, and best practices as it examines the topics of data quality and data governance.

Relevant Programs
• Graduate core required course for the MS in Strategic Analytics

Prerequisites
• RSAN101: Foundations of Data Science and Analytics

Welcome to Data Quality and Governance!

This course is one of the seven core courses required to complete the M.S. degree in Strategic Analytics.

This course will utilize case studies, trends, techniques, and best practices as it examines the topics of data quality and governance, and will include building a quality and governance infrastructure with organizational management, roles and responsibilities, stewardship, governance communications, and quality strategies. Data quality will be addressed as a continuous issue in data management, and the challenge it poses as the volumes of data increase and the uses for data expand.   At the end of the course, students will be able to:

- Understand the relationship between data and information
- Explain how organizations use data governance to address the challenges of data management
- Create and document the steps necessary to implement a data governance program
- Analyze the need for data policy standards and the stakeholders who manage data quality
- Evaluate the typical risks to data quality and describe the need for a data quality framework
- Identify and assess the role of auditing in data quality
- Evaluate and describe the impact of big data on organizational policies and data quality issues

Materials of Instruction

a. Required Texts

- **Data Governance: Creating Value from Information Assets**, Neera Bhansali, 2013. Auerbach Publications, ISBN: 978-1439879139.
- **Measuring Data Quality for Ongoing Improvement: A Data Quality Assessment Framework**, Laura Sebastian-Coleman, 2013. Morgan Kaufmann Publishing, ISBN: 978-0123970336.

b. Topic Notes and Assignments
- Weekly required and optional topic notes, available on the course site (in Latte)
- 2 assignments, available on the course site (in Latte)
- 1 research paper, available on the course site (in Latte)

c. Online Course Content

This section of the course will be conducted completely online using the Brandeis LATTE site. The site contains the course syllabus, assignments, discussion forums, links/resources to course-related professional organizations and sites, and weekly checklists, objectives, outcomes, topic notes, self-tests, and discussion questions. Access information is emailed to enrolled students before the start of the course.

Overall Course Objectives and Outcomes

At the end of the course, students will be able to:

- Understand what data is and how it works

- Describe the relationship between data and information

- Assess the business issues that data management can resolve

- Evaluate and explain the challenges inherent in data management and governance

- Understand How Data Governance fits into Organizational Strategy

- Explain Data Governance Maturity Models

- Articulate the Challenges of Data Governance

- Understand How to Mitigate Regulatory and Operational Risk Through Data Governance

- Create a Data Governance Document that Describes the Business Need for Data Governance

- Analyze The Concept of Data Quality Dimensions

- Articulate A Reasonable Data Quality Strategy

- Create and document a Strategic Approach to Data Quality

- Create a Data Quality Improvement Plan

Overall Grading Criteria

Percent	Component
30 %	Weekly Discussions / Online participation
40 %	Assignments (2)
30 %	Research Paper

Description of Grading Components

Weekly Discussions / Online Participation (30%, 3% per week)
All student participation will be done online via LATTE. Each weekly block has a page that includes "Discussion Questions". This page describes the topics for discussion related to the course materials posted that week.

To meet the minimum requirements for the Participation component of the grade, students will be expected to complete the following during weeks 1 through 10 of the course:

- o Respond to at least 2 discussion topics each week. Post an original response to one topic by end of day Saturday, midnight EST, and to another by end of day Monday, midnight EST.

- o Post at least 2 other substantive replies to the discussions each week by end of day Tuesday, midnight EST. These messages are replies to the original response messages of others, or replies to someone else's reply message. The assumption is that you will read through the posts of your classmates to enhance your learning; reply to those of your choice, based upon your own experiences and insights.

- o Post messages on three different days of the course week. While you may post all the required original responses and replies before the due dates, it is important for you to be involved in the discussions throughout the week.

Each of the two required **original response** messages contributes 30% of the weekly participation grade. Maximum grade is given for each of these if the posted message:

- Answers all questions asked and follows all directions specified in the topic description.
- Includes shared industry experiences and/or relates concepts to the topic notes and readings as appropriate. Note that all sources should be cited (refer to the Research Help > Citing Sources" link in the LATTE Resources block)
- Uses good grammar/spelling/format and cites sources as appropriate.
- Provides sufficient detail; **original responses should include a minimum of 300 words**. Some topics require lengthier responses in order to answer all of the questions.

Each of the two required **substantive reply** messages contributes 15% of the weekly participation grade. Maximum grade is given for each of these if the posted message:

- Provides substantive comments (beyond an "I agree" post) with follow-on points or questions to extend the conversation. **Substantive replies should include a minimum of 200 words.**
- Uses good grammar/spelling/format and cites sources as appropriate.

Posting of discussion messages needs to be done in a timely manner so that others in the class have sufficient opportunity to review these and provide replies.

Late Policy:
- **Half credit** is deducted for an original response that is one day late.
- **No credit** is earned for original responses that are posted more than one day late.
- **No credit** is earned for substantive replies that are posted late.

Additionally, 10% of the weekly participation grade is based on your participation in the discussions <u>throughout</u> the week.
- Maximum grade is given for those that post messages to the weekly discussions forum on three (or more) days during the course week.
- Partial credit is given for those that post their messages to the weekly discussions forum on only one or two days of the course week.
- The online participation grade for each week is based on your contribution to the weekly discussion forum, for example "Week 1 Discussions". Posts to the forums set up for discussion of general questions and comments, exercises, or assignments are not considered in the weekly participation grade.

To summarize, the online participation grade for each week is based on the following requirements:

Weekly Requirement	Portion of Weekly Participation Grade
Post Original response #1 by Saturday Night	30%
Post Original response #2 by Monday Night	30%
Post Substantive reply #1 by Tuesday Night	15%
Post Substantive reply #2 by Tuesday Night	15%
Post messages to the weekly discussions forum on three different days	10%

Each week, the online participation in these discussions contributes 3% to the overall course grade. Over ten weeks, this amounts to 30% of the overall course grade.

As stated, the above criteria reflect the ==minimum== requirements expected of each student. Only students who exceed this standard and, in addition, demonstrate exceptional comprehension and application of the course subject matter can earn a grade of B+ or better. Timely participation is important to ensure that everyone has the necessary input from others to complete their own work.

Assignments (40%)

There are 2 assignments during the semester. Each is worth 20% of the course grade.

Submission of each assignment is due by Tuesday at midnight in the week after it has been assigned.

Late Policy: There will be 10% grade reduction for each day the assignment is late. No assignments will be accepted after 7 days.

Research Paper (30%)

Concepts reviewed in the class will be demonstrated through a research project that will include analysis culminating into a comprehensive case study. Each student will write a research paper on a topic they will select during the second week of class. Students will select their topic from a list of data science and analytics topics.

The Research Paper should address and fully answer the following questions:

1) What were the main points that the topic addresses? (This includes any relevant history and context.)
2) What were the drivers behind this topic?
3) What were the issues or challenges the topic addresses?
4) What were the solutions the topic delivered?
4) How might this topic be impacted in the future?

The research paper will be a *minimum* of 3500 words in length, double-spaced, with a font no larger than 11 pt. The research paper will be due on the last day of Week 10.

Late Policy: There will be 10% grade reduction for each day the assignment is late. No Research Paper assignments will be accepted after 7 days.

II. Weekly Information

On the course site, the home page contains 10 weekly blocks, one for each week of the course. Within each weekly block on the home page, you will find information and resources about the activities for each week:

Overview: Checklist, Objectives and Outcomes
Discussions
Topic Notes & Other Required Readings
Additional Readings
Assignments / Assessments

Initially some of these items (related to discussions, assignments or assessments) will be hidden on the course home page. As we come to the appropriate point in the course, they will become visible and available. A schedule for availability is included within this syllabus.

Most of the items listed in the checklists are required for this course, but some are highlighted as "[optional]" for this course. As your schedule permits, you are encouraged to complete the optional work, as it will benefit your learning.

The following pages of this syllabus present a summary of the weekly objectives, outcomes, readings, assignments, and assessments.

• The chapter readings for all books are planned to generally follow the sequence of the weekly topic notes.

Week 1	Data Concepts and Definitions	01/16/18->01/23/18
Outcomes	Understand what data is and how it works Explain data's role in representing objects, events and concepts Describe the relationship between data and information Understand the concept of data ownership and the relationships between people in a business enterprise Analyze what data is and how it is used in organizations Assess the business issues that data management can resolve Evaluate and explain the challenges inherent in data management and governance	
Readings	☐ Sebastian-Coleman: Chapters 1 & 2 ☐ Week 1 Topic Notes and Readings o Week 1 Additional Readings (optional)	
Assignments / Assessments / Self-Assessments	☐ Complete the Academic Integrity Agreement ☐ Introduce yourself within the Introduce Yourself forum ☐ Week 1 Discussion Topics (3%) ☐ Begin Research Paper Topic Analysis (Due Tue. Week 2)	

Week 2	Data Governance Principles and Risk	01/24/18->01/30/18
Outcomes	Understand The Need for Data Governance Understand How Data Governance fits into Organizational Strategy Explain Data Governance Maturity Models Describe the Data Governance Life Cycle Explain how to Manage Risk with Data Governance Explain How Organizational Culture Affects Data Governance Articulate the Challenges of Data Governance	
Readings	☐ Bhansali: Chapters 1 & 2 ☐ Summary of proposed research topic and why you chose it. Due by Tuesday, Week 2 ☐ Week 2 Topic Notes and Readings o Week 2 Additional Readings (optional)	
Assignments / Assessments / Self-Assessments	☐ Week 2 Discussion Topics (3%) ☐ Summary of proposed research topic and why you chose it ☐ Submit Research Paper Topic (Due Tue. Week 2)	

Week 3	**Metadata Management and Data Governance**	*01/31/18->02/06/18*
Outcomes	Describe the Metadata Framework Evaluate and Explain Master Data Management Explain the Various Types of Assets that Require Governance Analyze and Describe Metadata Use for Data Governance Evaluate the Varying Data Models and Their Bearing on Governance	
Readings	☐ Bhansali: Chapter 3 ☐ Sebastian-Coleman: Chapter 3 ☐ Assignment #1: Data Governance Principles (20%). Due by Tuesday, Week 4 ☐ Week 3 Topic Notes and Readings ☐ Week 3 Additional Readings (optional)	
Assignments / Assessments / Self-Assessments	☐ Week 3 Discussion Topics (3%) ☐ Assignment #1: Data Governance Principles (20%). Due by Tuesday, Week 4	

Week 4	**Building a Business Case for Data Governance**	*02/07/18->02/13/18*
Outcomes	Understand How to Mitigate Regulatory and Operational Risk Through Data Governance Describe The Relationship Between IT and Business in an Organization Explain An Information Governance Framework Explain How to Optimize Performance with Data Governance Describe How Formal Structure Impacts Data Governance Create a Data Governance Document that Describes the Business Need for Data Governance	
Readings	☐ Bhansali: Chapters 7 & 9 ☐ Assignment #1: Data Governance Principles (20%). Due by Tuesday, Week 4 ☐ Week 4 Topic Notes and Readings o Week 4 Additional Readings (optional)	
Assignments / Assessments / Self-Assessments	☐ Week 4 Discussion Topics (3%) ☐ Assignment #1: Data Governance Principles (20%). Due by Tuesday	

Week 5	Data Quality Through Governance	02/14/18->02/20/18
Outcomes	The Need for Data Quality The Concept of Data Quality Dimensions The Need For Measurement in Data Quality Explain What Data Quality Is and Why it is Critical to an Organization Articulate A Reasonable Data Quality Strategy	
Readings	☐ Bhansali: Chapter 4 ☐ Sebastian-Coleman: Chapter 4 ☐ Week 5 Topic Notes and Readings ₀ Week 5 Additional Readings (optional)	
Assignments / Assessments / Self-Assessments	☐ Week 5 Discussion Topics (3%) ☐	

Week 6	Data Quality Assessment and Measurement	02/21/18->02/27/18
Outcomes	Understand The Need for A Data Quality Framework Review How Data is Sent and Received Document The Typical Risks to Data Quality Articulate the Governing Ideas of a Data Quality Framework Describe the Context for Data Assessment and Measurement Articulate the Steps to Implementing a Strategic Approach to Data Quality	
Readings	☐ Sebastian-Coleman: Chapters 5-6 ☐ Assignment #2: Data Quality Assessment (20%). Due by Tuesday, Week 7 ☐ Week 6 Topic Notes and Readings ₀ Week 6 Additional Readings (optional)	
Assignments / Assessments / Self-Assessments	☐ Week 6 Discussion Topics (3%) ☐ Assignment #2: Data Quality Assessment (20%). Due by Tuesday, Week 7	

Week 7	Data Assessment Scenarios	02/28/18->03/06/18
Outcomes	Understand The Data Quality Improvement Process Review The Purposes of Ongoing Quality Measurement Define The Typical Risks to Data Quality Articulate how automation can improve data quality Create and document a strategic approach to data quality	
Readings	☐ Sebastian-Coleman: Chapters 7-9 ☐ Week 7 Topic Notes and Readings o Week 7 Additional Readings (optional)	
Assignments / Assessments / Self-Assessments	☐ Week 7 Discussion Topics (3%) ☐ Assignment #2: Data Quality Assessment (20%). Due by Tuesday	

Week 8	Data Requirements and Risk	03/07/18->03/13/18
Outcomes	Understand Business risks, requirements and the criticality of quality data Analyze The various types of analytics and the purposes of each Define The factors that influence data criticality Evaluate how each type of analytic can be applied in a business environment Describe the importance of source systems and quality strategies Articulate data consumer requirements and rules	
Readings	☐ Sebastian-Coleman: Chapters 10-11 ☐ Week 8 Topic Notes and Readings ☐ Week 8 Additional Readings (optional)	
Assignments / Assessments / Self-Assessments	☐ Week 8 Discussion Topics (3%) ☐ Begin to finalize Research Paper	

Week 9	A Strategic Approach to Data Quality	03/14/18->03/20/18
Outcomes	Understand The various approaches to data quality in organizations Articulate The concept of a data strategy Determine How systems strategy can impact and affect data strategies Create a Data Quality Improvement Plan	
Readings	☐ Sebastian-Coleman: Chapters 12-13 ☐ Week 9 Topic Notes and Readings o Week 9 Additional Readings (optional)	
Assignments / Assessments / Self-Assessments	☐ Week 9 Discussion Topics (3%)	

Week 10	The Future of Data Governance	03/21/18->03/27/18
Outcomes	Understand How Data Governance Can be Applied to Business Review The Challenges of Data Governance in a Big Data World Describe the Framework for Successful Data Governance Strategies Explain How Information Exchanges Work Articulate the Possible Future Data Governance Challenges	
Readings	☐ Bhansali: Chapter 8 ☐ Week 10 Topic Notes and Readings o Week 10 Additional Readings (optional)	
Assignments / Assessments / Self-Assessments	☐ Week 10 Discussion Topics (3%) ☐ Final Research Papers due (30%) Due by Tuesday, Week 10	

III. Course Policies and Procedures

Orientation

From the home page of the course web site, students are expected to read all of the **Orientation Materials**.

Asynchronous and Synchronous Work

All required work for the course may be done asynchronously; i.e., students can login to the course, read/download materials, post to the Discussions, and submit assignments throughout the course week. Please carefully follow the syllabus and the weekly checklists to help manage your time throughout the course week; once we enter week 2 or 3, students typically become much more comfortable with the pace and flow of the course. As needed throughout the semester, synchronous Chat sessions can be made available using the course site's Chat Room facility.

Work Expectations

Students are responsible to explore each week's materials and submit required work by the specified due dates. On average, a student can expect to spend approximately 3-5 hours per week reading and approximately 4-6 hours per week completing assignments, assessments, and posting to discussions. The calendar of due dates is located at the end of this syllabus.

Although students plan to complete course work according to the specified due dates, sometimes things interrupt these plans, resulting in late work. In most cases, late work is accepted, but there is an impact on the grading (as discussed in the following section), and repeated late work can significantly and negatively affect your grade. In general, students are expected to manage the risks that may adversely affect their timely completion of course work to minimize the grading penalty for late work. Whenever you anticipate that some work will be late for some reason, a note to the instructor is appreciated.

Late Work

See the section titled "Description of Grading Components" for the criteria for handling late work related to the online participation components of this course. In order to allow adequate time for students to respond to the messages of others, it is especially important that messages from each student be posted in a timely manner. Grading penalties are incurred for any late postings.

Grading Standards

Grades are not given but are earned. Students are graded on demonstration of knowledge or competence, rather than on effort alone. Each student is expected to maintain high standards of honesty and ethical behavior. All student work submitted during the course is meant to represent your own individual work.
Students are expected to conduct themselves courteously online. If in the instructor's judgment a student's conduct is not courteous, that student's grade may be reduced.

All course work should be completed with attention to good grammar and spelling. When instructions are provided regarding the mechanics for completing or submitting work, these details should be carefully followed. If submitted work is inadequate in any of these regards, the grade may be reduced.

How Points and Percentages Equate to Grades

100-94	A	76-73	C
93-90	A-	72-70	C-
89-87	B+	69-67	D+
86-83	B	66-63	D
82-80	B-	62-60	D-
79-77	C+	≤ 59	F

Feedback

Feedback will be provided on all assignments and the Final Exam within 10 days of the due date. In each case, review comments are provided through the relevant LATTE assignment activity.

Feedback about online participation will be provided through the "Participation Feedback" assignment activity within each weekly block.

Grades for all of the course assignments and assessments are viewable through the LATTE "Grades" facility within the Left-Frame block on our course home page.

Access to LATTE Web Site

Members of the University's technical staff have access to all course sites to aid in course setup and technical troubleshooting. Program Chairs and a small number of Graduate Professional Studies (GPS) staff have access to all GPS courses for oversight purposes. Students enrolled in GPS courses can expect that individuals other than their fellow classmates and the course instructor(s) may visit their course for various purposes. Their intentions are to aid in technical troubleshooting and to ensure that quality course delivery standards are met. Strict confidentiality of student information is maintained.

Students have access to the LATTE course web site throughout the duration of course and for approximately two months after the course completes. If there are any materials that students want to download from their course site, this should be done before the site is closed to student view.

Class Schedule

The course runs for ten weeks. Each week begins on a Wednesday and ends on a Tuesday.

To accommodate celebration of holidays, traveling on business trips, or taking time for vacations, students are expected to schedule their course work accordingly, submitting work in advance of due dates when necessary.

Week	Dates
1	Wednesday, Jan 16 – Tuesday, Jan 23
2	Wednesday, Jan 24 – Tuesday, Jan 30
3	Wednesday, Jan 31 – Tuesday, Feb 6
4	Wednesday, Feb 7 – Tuesday, Feb 13
5	Wednesday, Feb 14 – Tuesday, Feb 20
6	Wednesday, Feb 21 – Tuesday, Feb 27
7	Wednesday, Feb 28 – Tuesday, Mar 6
8	Wednesday, Mar 7 – Tuesday, Mar 13
9	Wednesday, Mar 14 – Tuesday, Mar 20
10	Wednesday, Mar 21 – Tuesday, Mar 27

Calendar of Due Dates

Assignment	Available	Due
Summary of Research Paper Topic	Wed, Week 1	Tues, Week 2
Assignment #1	Wed, Week 3	Tues, Week 4
Assignment #2	Wed, Week 6	Tues, Week 7
Research Paper	Wed, Week 2	Tues, Week 10
Responses to 2 Discussion Topics	Weds of each week	1 by Sat each week; 1 by Mon each week
Other Substantive Posts (2 per week)	-	2 by Tues each week

IV. University and Division of Graduate Professional Studies Standards

Please review the policies and procedures of Graduate Professional Studies, found at
http://www.brandeis.edu/gps/resources/student-handbook.html.

We would like to highlight the following.

Learning Disabilities

If you are a student with a documented disability on record at Brandeis University and wish to have a reasonable accommodation made for you in this course, please contact me immediately.

Academic Honesty and Student Integrity

Academic honesty and student integrity are of fundamental importance at Brandeis University and we want students to understand this clearly at the start of the term. As stated in the Brandeis Rights and Responsibilities handbook, "Every member of the University Community is expected to maintain the highest standards of academic honesty. A student shall not receive credit for work that is not the product of the student's own effort. A student's name on any written exercise constitutes a statement that the work is the result of the student's own thought and study, stated in the students own words, and produced without the assistance of others, except in quotes, footnotes or references with appropriate acknowledgement of the source." In particular, students must be aware that material (including ideas, phrases, sentences, etc.) taken from the Internet and other sources MUST be appropriately cited if quoted, and footnoted in any written work turned in for this, or any, Brandeis class. Also, students will not be allowed to collaborate on work except by the specific permission of the instructor. Failure to cite resources properly may result in a referral being made to the Office of Student Development and Judicial Education. The outcome of this action may involve academic and disciplinary sanctions, which could include (but are not limited to) such penalties as receiving no credit for the assignment in question, receiving no credit for the related course, or suspension or dismissal from the University.

Further information regarding academic integrity may be found in the following publications: "In Pursuit of Excellence - A Guide to Academic Integrity for the Brandeis Community", "(Students') Rights and Responsibilities Handbook", AND " Graduate Professional Studies Student Handbook". You should read these publications, which all can be accessed from the Graduate Professional Studies Web site (http://www.brandeis.edu/gps/). A student that is in doubt about standards of academic honesty (regarding plagiarism, multiple submissions of written work, unacknowledged or unauthorized collaborative effort, false citation or false data) should consult either the course instructor or other staff of the Division of Graduate Professional Studies.

University Caveat

The above schedule, content, and procedures in this course are subject to change in the event of extenuating circumstances.