A Pedagogic Experience in Designing a Healthcare Analytics Course: Lessons Learned

Rachida F. Parks
Rachida.parks@quinnipiac.edu
Computer Information Systems
Quinnipiac University
Hamden, CT 06518

Abstract

This study presents a contextual active learning perspective on how a healthcare data analytics course was designed and delivered to students enrolled in a graduate business analytics degree. Industry and academia emphasizes the need to integrate context-specific learning, however contextual analytics courses are not widely offered in business schools. This course's pedagogical approach seeks to address this need by embracing a contextual active approach. Such approach is based on the following key components: (1) Active learning − designing each module of the course to include activities and lessons to promote active participation of learners, (2) contextual development − modules are developed using healthcare as the focus and context for all activities, (3) online adaptation − the course is delivered online in an unsynchronized mode and therefore the development adapts to online delivery intended to maximize learning. This course integrates a collaborative project with a healthcare industry partner where students analyze anonymized dataset for the purpose of a more contextual and experiential healthcare experience.

Keywords: Healthcare analytics, analytics, active learning, contextual active learning, pedagogical experience.

1. INTRODUCTION

Hospitals, insurance companies, and vendors are all competing for a limited pool of talented data analytics experts in healthcare (Bresnick 2019). This growing demand for healthcare data scientists is also highlighted in a recent study published by a premier journal − *Journal of the American Medical Informatics* − which calls for more training and education of skilled professionals to appropriately analyze healthcare data to improve care, predict epidemics, and reduce preventable deaths (Meyer 2019). As such, data analytics is becoming crucial in the evolution of healthcare practices and research (Belle et al. 2015).

Healthcare analytics can provide different stakeholders the ability to improve care delivery, disease exploration, patient engagement functionalities, financial efficiency, and operational effectiveness (Lin et al. 2017; Raghupathi and Raghupathi 2014). With healthcare organizations becoming more data driven, health associations, such as the American Health Information Management Association, are calling for professionals to effectively analyze data, interpret insights and identify the best methods to deliver high quality care (AHIMA 2017).

Developing the appropriate material can potentially strengthen the skills needed by the next-generation of healthcare analytic experts. However, curricular material as well as pedagogical research are not widely available in business analytics programs. Moreover, despite current studies advocating the importance of context when promoting active learning (Berkhout et al. 2018; Chung 2017), research on the development and delivery using contextual and active learning approaches is not widely available (Chung 2015).

To address this void of contextualized analytics, we developed a healthcare analytics course to interconnect analytics skills with domain knowledge and decision-making. In this course, we integrate a contextual active learning approach based upon the active learning principles and contextual course components for the purpose of developing curricular modules. A curricular module is an organized collection of objectives, activities, assignments and discussion spanning over a week (See Appendix A).

In the following sections, we present a brief exposition of the healthcare analytics and active learning pedagogy. Next, we discuss our experience with teaching this course, and present the pedagogy, approach, course content, and software application tools. We also describe different course assignments and exercises to support a contextual active learning approach. We conclude with a discussion of lessons learned and survey scores for the associated course learning outcomes.

2. RELATED WORK

Overview of Healthcare Analytics

Healthcare analytics refers to the use of tools (statistical, contextual, quantitative, predictive, etc.) for the purpose of providing actionable items for better decision making (Kankanhalli et al. 2016). Healthcare analytics can provide organizations the ability to use their data to improve quality of care, increase financial efficiency and operational effectiveness (Raghupathi and Raghupathi 2014). The domain offers a panoramic view of the healthcare data and thus provides different stakeholders the ability to go beyond improving profits and reducing waste, to enable epidemic predictions, disease mitigation and cure, and quality of life improvements (Lin et al. 2017).

Raghupathi and Raghupathi (2013) describe healthcare analytics through a four-stage model. The first stage, *descriptive analytics*, consists of categorizing and aggregating the data in order to understand past and current health care decisions. In healthcare, descriptive analytics is useful in answering questions such as: How many patients were treated? Which type of medical conditions were predominant? And what was the revenue generated by facility last quarter? *Predictive analytics* include "empirical methods (statistical and other) that generate data predictions as well as methods for assessing predictive power" (Shmueli and Koppius 2011, p. 553). In other words, it examines historical health data, detects patterns and then extrapolates these relationships to predict future outcomes. In predictive analytics, a health professional might seek to predict the type of patients who will respond to a given drug, patients who are most likely to have a medical condition (e.g., heart attack), anticipated costs, or predict medication failures. Unlike descriptive analytics, predictive analytics uses more advanced techniques and methods, such as data mining. The third stage of analytics is *prescriptive*. It uses medical and healthcare knowledge to supplement the outcomes of descriptive and predictive analytics to finalize a decision when more than one choice is available. Finally, *discovery analytics* utilizes "knowledge about knowledge, or wisdom, to discover new drugs (drug discovery), previously unknown diseases, alternative treatments" (Raghupathi and Raghupathi 2013, p. 4). It is worth noting that while the tools and methods are different in descriptive, predictive, prescriptive, and discovery analytics, many applications involve all four approaches.

Contextual Active Learning Approach

Traditional lecture format or lecturing has been the principal method of teaching dating back to 900 years ago when universities were founded in Western Europe (Brockliss 1996). The traditional format has been labelled as a passive methodology because students simply receive information from the instructor (Pinder 2013). Active learning, often contrasted to the traditional lecture format, has been defined as methods and activities where students engage in the learning process through problem solving and higher-order thinking (Prince 2004). In other words, active learning promotes "instructional activities involving students in doing things and thinking about what they are doing" (Bonwell and Eison 1991, p. 3). The active learning approach has received considerable attention and its effectiveness has been supported in diverse domains, including software development (Roussev and Rousseva 2004), operation management (Hill and Baker 2016), marketing (Laverie 2006), and engineering (Prince 2004).

Despite current studies advocating the importance of context when promoting active learning (Berkhout et al. 2018; Chung 2017), research on the development and delivery using contextual and active learning approaches is not widely available (Chung 2015). Our pedagogical approach seeks to address this need.

3. PEDAGOGIC APPROACH, TOOLS, AND LEARNING GOALS

Course Learning Objectives

This course was offered online for graduate students majoring in business analytics and includes the following learning objectives (LO):

1. Define data sources and key uses for healthcare analytics (LO1).
2. Compare analytical methods and tools used to analyze healthcare data (LO2).
3. Apply analytical methods and tools to solve selected healthcare problems (LO3).

While the course has a statistics pre-requisite, most students already had taken other quantitative courses, including predictive analytics and data mining, which are required courses in the business analytics program. Therefore, the context of healthcare is the most attractive feature of this course where the focus is on solving problems and/or creating value for healthcare professionals. This course integrates a collaborative project with a healthcare industry partner where students analyze an anonymized dataset for the purpose of a more experiential healthcare experience. The integrative nature of this collaboration between industry and education not only allows students to analyze and interpret a real data set and problems, but also aligns students' analytical skills with the industry hiring needs and recruitment.

Seven Curricular Modules

In this section, we present the course curricular modules in a format that aligns with the contextual active learning approach introduced above. A curricular module is an organized collection of objectives, activities, assignments and discussion. Each module's objectives are aligned with the overall course learning objectives. To illustrate contextualization and active learning, each module also includes other components such as discussions, learning analytics tools, and engaging in an industry analytics project.

Module 1: Analytics in Healthcare

- Module Objectives:
  - Summarize the current state of data analytics in healthcare (LO1)
  - Classify types of Data Sources in Healthcare (LO1)
- Module Discussion:
  Discuss an example of a healthcare organization in using healthcare analytics to save lives, reduce cost, increase profit or other competitive advantages (LO1)
- Data Analytics Tools:
  Register for IBM Watson Analytics Account (LO3)

Module 2: Healthcare Data sources and Basic Analytics

- Module Objectives:
  - Examine Electronic Healthcare Records (LO1)
  - Compare biomedical image data sources and analysis (LO1)
  - Examine sensor data used in medical informatics (LO1)
  - Discuss types of biomedical signals (LO3)
- Module Discussion:
  Discuss the type of healthcare dataset(s) used in healthcare (LO1)
- Descriptive Analytics:
  Analyze healthcare security breaches using Watson analytics (LO3)

Module 3: Clinical Text and Social Media Data in Healthcare Analytics

- Module Objectives:
  - Analyze the role of Natural Language Processing (NLP) in healthcare (LO2)
  - Examine social media and analysis for healthcare analytics (LO2)
- Module Discussion:
  Locate a pertinent healthcare dataset and then analyze it (LO3)
- Data Visualization:
  Analyze a dataset of interest (deeper look into descriptive analytics) (LO3)

Module 4: Healthcare Analytics Tools and Methods

- Module Objectives:
  - Examine clinical prediction models (LO2)
  - Categorize temporal data mining for healthcare data (LO2)
  - Discuss visual analytics for healthcare (LO2)
- Module Discussion:
  Engage in critical thinking activities related to term project (LO3)
- Industry Term Project:
  Engage in descriptive analytics of the term project data (LO3)

Module 5: Applications of Healthcare Analytics

- Module Objectives:
  - Examine data analytics for fraud detection in healthcare (LO1)
  - Discuss data analytics for pharmaceutical discoveries (LO1)
- Module Discussion:
  Communicate in writing your descriptive and predictive and analytics findings (LO3)
- Industry Term Project:

Engage in predictive analytics by using IBM Watson Analytics to find top drivers and other factors (LO3)

Module 6: Challenges of Healthcare Analytics

- Module Objectives:
  - Discuss privacy and security issues related to healthcare analytics (LO1)
  - Compare privacy preserving publishing methods (LO2)
- Module Discussion:
  Discuss concerns/challenges (e.g., ethical, legal, data governance, silos, privacy, security…) as a result of the adoption of big data in healthcare (LO1)
- Industry driven Term Project:
  Analyze healthcare data using healthcare analytics techniques (beyond descriptive and predictive into prescriptive analytics) (LO3)

Module 7: Healthcare Analytics – What's Next

- Module Objectives:
  - Discuss career opportunities in healthcare analytics (LO1)
  - Examine trends in healthcare analytics (LO1)
  - Assess understanding of key concepts related to healthcare analytics (LO1, LO2, LO3)
- Module Discussion:
  Discuss career opportunities in healthcare analytics (LO1)
- Industry Driven Term Project:
  Communicate results and deliver final report with all the required sections

Platform and Analytic Techniques Overview

The big data analytic platform employs a plethora of techniques and tools to handle the large amount of data. Recent studies have shown that students are discouraged when multiple platforms are used within a single analytics course. Although it increases their breadth of software use, it decreases the depth of acquired skills within each application (Asamoah et al. 2017). As such, we embraced one major tool for this course to allow in-depth mastery of the skills leveraged through the tool.

The choice of tools, skills and content was based on feedback from industry and academia experts. Since advanced statistical methods are taught and used in other courses in the business analytics program, a focus on the contextual - Healthcare Analytics - was emphasized rather than learning a major new and or complex analytics technique. We selected IBM Watson Analytics as our data analytics tool for the following reasons: It allows users to 1) execute both descriptive and predictive analytics, 2) create dashboards and infographics, 3) discover relationships and test correlations, and 4) is cloud based and therefore has no/limited hardware constraints (https://www.ibm.com/watson-analytics). Figure 1 provides an illustration of the various discovery capabilities as suggested by Watson. It also allows healthcare professionals to type their own inquiry (in the form of questions) once a dataset is uploaded. The lower section shows capabilities of testing relationships or running some predictive analysis.

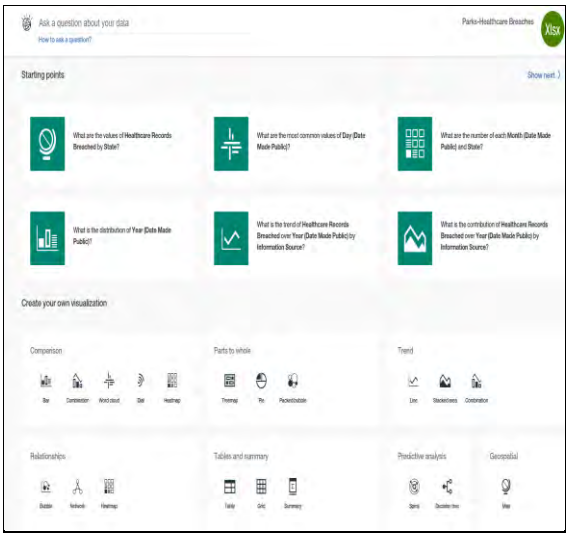

Figure 1. Watson Analytics Discovery Screen

Contextual Active Learning Assignments

We used a variety of assignments, discussion themes, and a term project that align with the course learning objectives. We present three sample course assignments that covered multiple concepts. For each assignment, we present the learning objectives, description and how it aligns with our contextual active learning approach.

Sample Course Assignment: Analyze Medical Data Breaches

- Learning Objectives:
  - Perform Extract-Transform-Load (ETL) of healthcare data dealing with breaches
  - Apply IBM Watson Analytics to analyze healthcare data
  - Perform descriptive analytics to answer the "What" questions
- Assignment Description:

The Privacy Rights Clearinghouse (PRC) Chronology of Data Breaches, accessible via http://www.privacyrights.org/data-breach, is a

nonprofit corporation in California that was established in 1992. PRC keeps up-to-date information of data breaches across all industries and the government within the US. PRC aims to provide timely and historical information on data breaches. PRC reported more than ten billion records breached from over 4500 medical data breaches impacting more than 255 million patients since 2005. Students are asked to apply analytical skills that will produce measurable insights from historical performance data that can be transformed into actionable insights. Students will engage in two major analytic activities: (1) extract, transform and load (ETL) the data; (2) create visualization graphs using business analytics tools (e.g., IBM Watson Analytics). In this assignment, students will focus on descriptive analysis and will be answering the "What" questions in order to provide a view of both current and historical results. Descriptive analytics tells the business how it is performing and help identify key issues in their current performances.

- Contextual Active Learning Focus

The students were required to extract publicly available dataset through PRC website. They purposely selected medical/healthcare data for analysis since healthcare is the context of this course. With a focus on data breaches from healthcare, they found that theses breaches account for almost half of the total reported breaches across all industries. Healthcare data breaches account for over 4500 cases of breaches, and impact more than 255 million patients (PRC 2019). The analysis activities using the contextual active learning approach is forcing students to engage in not only creating visualization charts but also thinking about the extent of the findings and engaging in what they are doing. The engagement and feedback were happening through the required weekly discussions.

Sample Course Discussion: Discuss Healthcare Analytics Issues

- Learning Objective:
  - Identify current healthcare analytics issues for analysis
  - Discuss implication and illustrate with current events/publications
- Assignment Description:

The adoption of big data in healthcare increases security and patient privacy concerns. Write one short paragraph describing concerns/challenges (e.g., privacy, security, ethical, legal, data governance, silos) as a result of big data adoption in healthcare.

- Contextual Active Learning Focus

After watching an entertaining video of ordering pizza (Dedots 2006), students quickly identified some implications and challenges of data analytics. The video portrays the dismay of a customer who was placing a pizza order. Not only information about his phone, national ID, work, and recent travel booking was available to the clerk, but also his health data (high cholesterol and high blood pressure) that caused a premium cost to his pizza, Tying a simple pizza order to health complications puts in perspective the power and possible concerns of analytics. To encourage engagement and discussions about the issues and the context of analytics in healthcare, students were required critique their peers.

Sample Course Project: Working With a Healthcare Industry Partner

- Learning Objectives:
  - Identify a healthcare topic of interest and matching dataset for analysis
  - Analyze healthcare data using healthcare analytics techniques
  - Discuss and communicate findings in writing
- Assignment Description:

The data analytics team, from a teaching hospital, provided a real dataset set to enhance not only the students' learning but also engagement with industry. In this project, students will engage in major analytics activities including but not limited to descriptive and predictive analytics using business analytics tools.

In this course, students are responsible for developing a preliminary research article targeting some of the major questions provided by the hospital analytics team. Students will analyze the data using Watson Analytics software. The final manuscript should introduce the research question(s) in the introduction section, include a literature review, a description of the methodology and findings, and finally a discussion and a conclusion.

- Contextual Active Learning Focus

The author contacted several hospitals in order to provide a true and applied contextual experience in a healthcare setting. It is not a trivial task to get organizations to share their datasets but we have been successful. This is documented by a student who stated "I am excited about the IBM Watson component of the curriculum and even more excited to be working

with actual health care data from our hospital partner. I know how sensitive healthcare data is and how hard it is to find outside of a healthcare organization, so to be working with real data is a big advantage."

4. DISCUSSION

In this section, we discuss the lessons learned and offer recommendations to enhance future deployments. We also discuss students' assessment of this course.

Lessons Learned

We present some of the key challenges we encountered throughout this course in the form of lessons learned:

Textbook or No Textbook

While designing and developing this course, we were able to put together the topics to cover based on the author's industry experiences, research in healthcare analytics and assistance from other experts in industry and education. Once the topics were identified, we selected a textbook. The first challenge we debated for months whether to assign or not assign a textbook for this interdisciplinary course. We erred on the side of assigning a book simply because the course is delivered online, and it provides a sense of structure to the students. Selecting the appropriate book for any course is not trivial. However, when the course is interdisciplinary and assumes different background for students, the task becomes very daunting. We attended vendors' booths at Information Systems and Health Informatics conferences – Americas' Conference on Information Systems (AMCIS), the Information and Management Systems Society (HIMSS), and the Conference on Information Systems and Computing Education (EDSIG) – and approached professors and editors about health analytics books. This task was a very challenging because 1) there is a limited number of books that covers data analytics in healthcare and 2) among the few we found, each book was taking a completely different perspective. The first book looked promising based on the description. After we ordered and reviewed the book, it was almost anecdotal. The second one was business/managerial in nature, and we almost went that route before realizing it barely discussed healthcare dataset sets or different analytical methodologies. Finally, we chose a book edited by Chandan Reddy who is a Computer Science professor and Charu Agarwal who works at IBM Research Center (Reddy and Aggarwal 2015). Our initial reaction was not to use the book because it may seem geared toward computer science degree students especially with some sections getting into the algorithms behind the different methods. Then, we closely assessed the content of each chapter, and noticed the variety of academic and industry background of the authors writing each chapter and thus providing the interdisciplinary features that met the course learning objectives. For example, Chapter 1 is written by a computer scientist and IBM researcher while chapter 3 is written by employees of the biomedical image analytics lab at GE Global Researcher. Chapter 4 is written by employees at the IBM Watson research lab and College of Medicine researchers while chapter 12 is written by sciences researchers from the School of Information Library Science.

While the book touches on the major learning objective set for this course, we still have some reservations. Some chapters are written by computer scientists where much attention is focused on the algorithms which is outside the scope of the course and our graduate business students. This was alleviated by making clear to students that while the details are great, they are not part of this course and students are not expected to learn nor memorize this material. The other reservation pertains to the book lacking coverage of the social and behavioral aspects of data analytics, such as privacy, patient engagement and ethics topics, but those were easily covered in the course through relevant research articles.

Software Platform

The software used has a significant impact on the overall class. As tempting as it may be to expose the students to different analytics platforms, we learned from other data analytics classes we taught not to introduce many data analytics platforms during one course offering. This is also recommended by other researchers who state that using many applications enriches the students' experiences but also has major drawbacks especially with the width of coverage and the lack of depth needed to perform the analysis (Asamoah et al. 2017). As this is an elective course (with statistics as prerequisites), we did not have to worry about covering the statistical or analytical foundations of business analytics. Therefore, our focus was on a 1) widely used software in industry especially in

healthcare, 2) moderately challenging but not overwhelming software so it does not take away from the contextual learning of healthcare, and 3) finally offering both descriptive and predictive capabilities. We selected IBM Watson Analytics as our platform to meet the above criteria.

Interdisciplinary Backgrounds and Flexibility

We assessed the academic backgrounds and professional experiences of students taking this course (See Appendix C). A total of 21 were enrolled in this elective business analytics course with academic background varying from management information systems to fine arts and actuaries. All students who completed this information (19 students out of 21) are currently working in a variety of industries (healthcare, insurance, government, manufacturing …). Despite the disparities in their academic backgrounds and work experiences, all of the students reported on the use and need of analytics in their current jobs. Such interdisciplinary in backgrounds provided a very rich platform for discussions for each module and allowed students to apply their learning to their work environment and engage beyond the requirements of the course. This also dictated a flexible structure to move from an assigned term project to a project allowing students to use their own dataset.

Contextual Active Learning

The combination of a data analytics and healthcare attracted students to this graduate elective course. Based on utilizing an active learning approach, we introduced several learning objectives for each module and align each activity (e.g., assignments, readings, discussions…) with the learning objectives. With the course being contextualized in healthcare and half of the students working in healthcare or related field (healthcare insurance), the assignments especially the term project and the weekly discussions took a much deeper undertaking both at the data analysis and discussions activities.

Online vs. On Ground

This course was offered online which is different from on ground offerings. The development of the course did not make any assumptions about knowledge or skills. For instance, we set a webinar with the librarian to offer a session on how to search for discussion articles, use different databases and search engines. In an on ground class, the entire activities would have a show of hands to check if they know how to search for scholarly articles. Sensitive to different backgrounds, skills are necessary to create a conducive learning environment.

Healthcare Domain

Despite the first module being dedicated to analytics in the context of healthcare, students worked on interpreting data/models without a clear competency on the sector of healthcare itself. The absence of a clear and dedicated overview of general healthcare domain knowledge could be easily alleviated by providing such background to all students in the first module.

Learning Assessment

The course evaluations have shown that students gave positive feedbacks of overall satisfaction with the course. We assessed students' perceptions of the course impact and instructor effectiveness through a survey using a 5-point Likert scale (see appendix B). The results of the survey are provided in comparison to other courses within the College of Business. The students (n=10) rated the instructor the overall teaching ability at 4.6 out of 5.00 in comparison to the average of the school of business instructors rating at 4.0 out 5.00. They acknowledged that the instructor brings current ideas and emphasizes the intersection of healthcare and analytics and summarizes which is crucial in contextual settings as stated by one student in the survey:

> *"Very helpful, intriguing, enlightening, and extremely relevant to the real world."*

In alignment with an active learning approach, the course included a variety of individual and group activities that were not only engaging but yielding maximum learning in technical, analytical and team work skills. For instance, one student stated:

> *"I felt group activities were engaging and required group members to utilize relevant technical and social skills to collaborate."*

Another student commented:

> *"I think this class has a healthy balance of individual work assignments and team assignments. During my early days in the Business Analytics program, many of the courses were too heavily centered on group work and there was no individual accountability. The classes are evolving and creating an environment that facilitates maximum learning."*

Though not captured directly by the survey, the open-ended questions provided more feedback on the selected analytics platform. The course aims to create a balance between content and technology on one hand and between students from different background. Students who were already working in industry and from technical background felt a certain level of frustration when they could not manipulate certain functionalities within the selected software.

In addition to the course evaluation completed by students, we are currently considering additional assessment to evaluate the course and modules. New evaluations will include different methods, such as qualitative data gathering from industry stakeholders, and assessment of instructional design and delivery. Incorporating feedback from students, employers and educational designers may further ensure the interdisciplinary goals of this course while ensuring effectiveness of learning.

5. CONCLUSION

This research highlights the need to integrate context-specific learning of analytics through specialized analytics courses. We utilized a contextual approach to creating curricular modules for use in healthcare analytics. The results should contribute to addressing the needs for active-learning and contextualized learning in healthcare data analytics. Thus, developing skilled data analytics experts for healthcare, and providing empirical results on a healthcare analytics course implementation.

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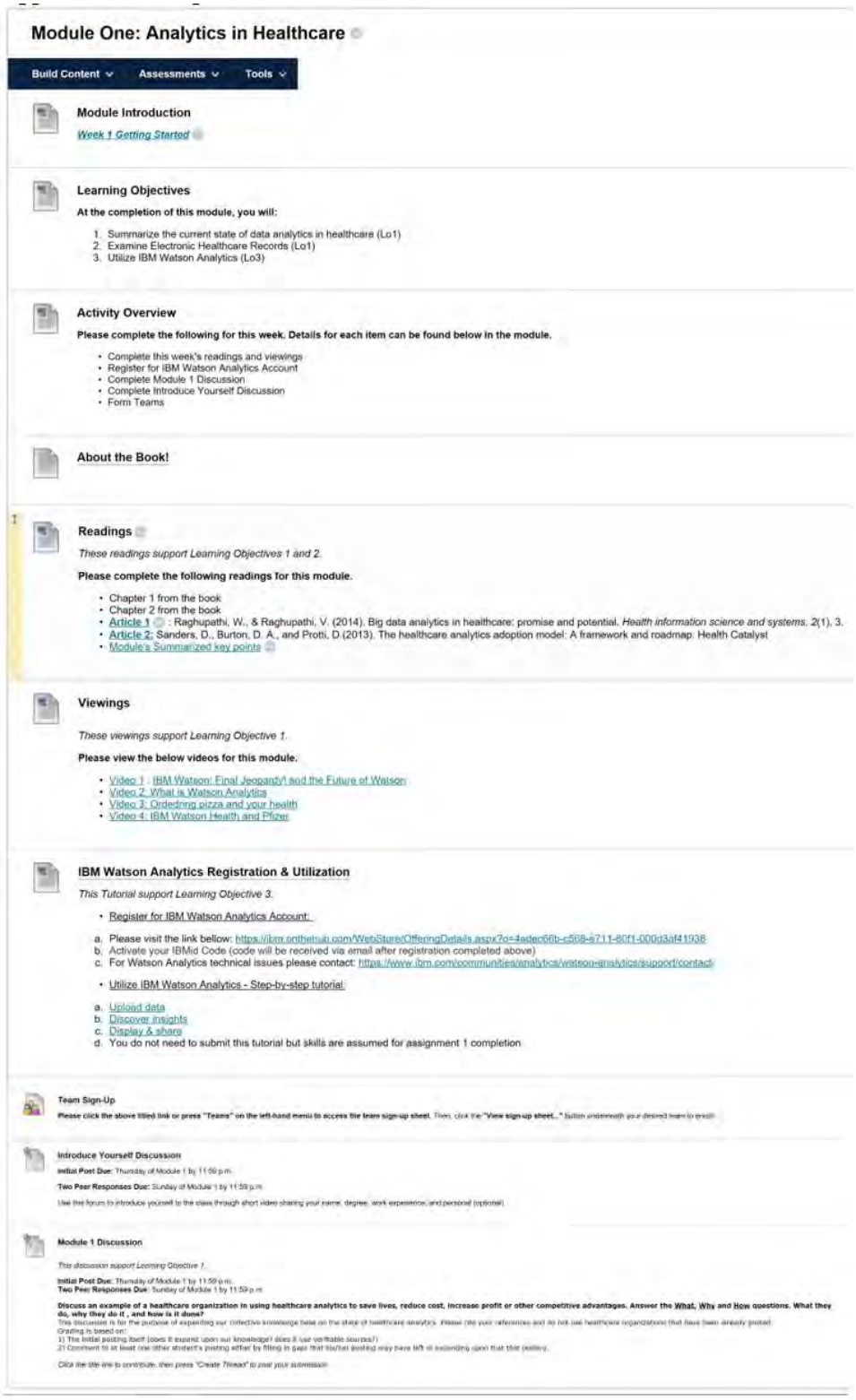
Appendix A – Sample Curricular Module



Module One: Analytics in Healthcare

Build Content | Assessments | Tools

Module Introduction

Week 1 Getting Started

Learning Objectives

At the completion of this module, you will:

1. Summarize the current state of data analytics in healthcare (Lo1)
2. Examine Electronic Healthcare Records (Lo1)
3. Utilize IBM Watson Analytics (Lo3)

Activity Overview

Please complete the following for this week. Details for each item can be found below in the module.

- Complete this week's readings and viewings
- Register for IBM Watson Analytics Account
- Complete Module 1 Discussion
- Complete Introduce Yourself Discussion
- Form Teams

About the Book!

Readings

These readings support Learning Objectives 1 and 2.

Please complete the following readings for this module.

- Chapter 1 from the book
- Chapter 2 from the book
- Article 1 : Raghupathi, W., & Raghupathi, V. (2014). Big data analytics in healthcare: promise and potential. *Health information science and systems*, *2*(1), 3.
- Article 2: Sanders, D., Burton, D. A., and Protti, D.(2013). The healthcare analytics adoption model: A framework and roadmap. Health Catalyst
- Module's Summarized key points

Viewings

These viewings support Learning Objective 1.

Please view the below videos for this module.

- Video 1 : IBM Watson: Final Jeopardy! and the Future of Watson
- Video 2: What is Watson Analytics
- Video 3: Ordeding pizza and your health
- Video 4: IBM Watson Health and Pfizer

IBM Watson Analytics Registration & Utilization

This Tutorial support Learning Objective 3.

- Register for IBM Watson Analytics Account:

a. Please visit the link bellow: https://ibm.onthehub.com/WebStore/OfferingDetails.aspx?o=4adec66b-c568-e711-80f1-000d3af41938
b. Activate your IBMid Code (code will be received via email after registration completed above)
c. For Watson Analytics technical issues please contact: https://www.ibm.com/communities/analytics/watson-analytics/support/contact

- Utilize IBM Watson Analytics - Step-by-step tutorial:

a. Upload data
b. Discover insights
c. Display & share
d. You do not need to submit this tutorial but skills are assumed for assignment 1 completion

Team Sign-Up

Please click the above titled link or press "Teams" on the left-hand menu to access the team sign-up sheet. Then, click the **"View sign-up sheet..."** button underneath your desired team to enroll.

Introduce Yourself Discussion

Initial Post Due: Thursday of Module 1 by 11:59 p.m.

Two Peer Responses Due: Sunday of Module 1 by 11:59 p.m.

Use the forum to introduce yourself to the class through short video sharing your name, degree, work experience, and personal (optional).

Module 1 Discussion

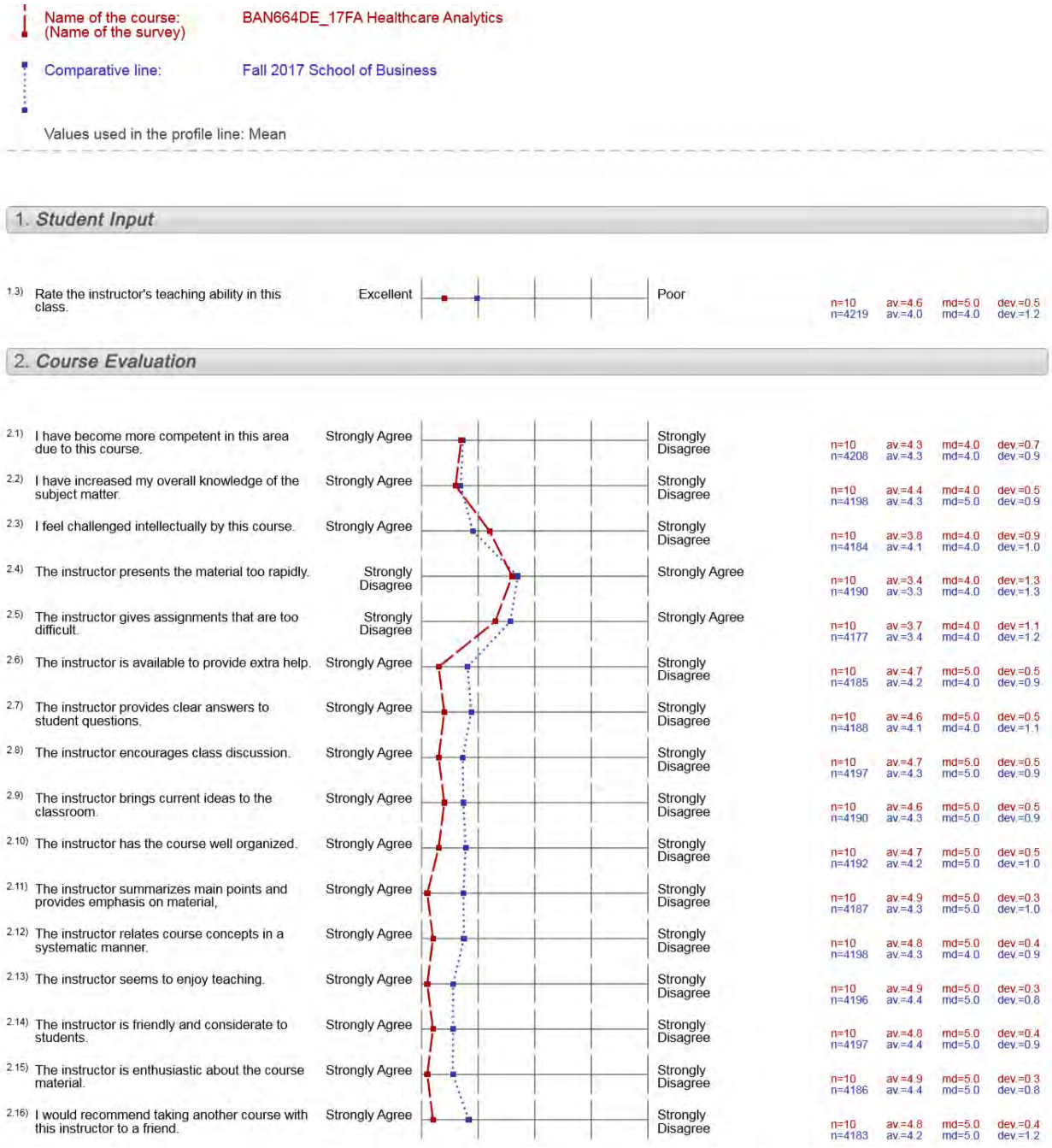
This discussion support Learning Objective 1.

Initial Post Due: Thursday of Module 1 by 11:59 p.m.
Two Peer Responses Due: Sunday of Module 1 by 11:59 p.m.

Discuss an example of a healthcare organization in using healthcare analytics to save lives, reduce cost, increase profit or other competitive advantages. Answer the What, Why and How questions. What they do, why they do it , and how is it done?
This discussion is for the purpose of expanding our collective knowledge base on the state of healthcare analytics. Please cite your references and do not use healthcare organizations that have been already posted.
Grading is based on:
1) The initial posting itself (does it expand upon our knowledge? does it use verifiable sources?)
2) Comment to at least one other student's posting either by filling in gaps that his/her posting may have left or extending upon that idea/story.

Click the title link to contribute, then press "Create Thread" to post your submission

Appendix B - Course Evaluation



Appendix C - **Students' Academic Backgrounds of Students Enrolled in Healthcare Analytics Course**

Student	Seeking MS degree in	Undergraduate Degree Major/Minor	Experience	Industry
1	Business Analytics	Management/ Finance	Advanced development program	Aerospace Manufacturing
2	Business Analytics	Journalism	Account Manager	Technology
3	Business Analytics	Economics/Finance	Informatics	Insurance
4	Business Analytics	History	IT Security Manager	Insurance
5	Business Analytics	MIS	Senior Consulting Analyst	Insurance
6	Business Analytics	Finance/Accounting	Business Intelligence Analyst	Insurance
7	Business Analytics	Accounting and Finance	Analyst	Insurance
8	Business Analytics	Information Science/Mathematics	Healthcare Business Data Manager	Healthcare
9	Business Analytics	Mathematics	Director of Credit Risk Management	Financial
10	Business Analytics	Management	Business Intelligence Analyst	Life Insurance
11	Business Analytics	MIS	Database Administrator/Analyst	Government
12	Business Analytics	Not provided	IT Analyst	Healthcare
13	Business Analytics	Digital Communication	Cyber-Space operation Officer	Government
14	Business Analytics	Actuarial science	Analyst	Insurance
15	Business Analytics	Not provided	Not provided	Not provided
16	Business Analytics	Fine Arts	Data Analyst	Manufacturing
17	Business Analytics	Philosophy/Psychology	Reporting Analytics	Healthcare
18	Business Analytics	Accounting	Financial Analyst	Healthcare
19	Business Analytics	Asian Studies	Director of Operation Risk	Financial
20	Business Analytics	MIS	IT Assistant	Electrical
21	Business Analytics	Not provided	Not provided	Not provided