COURSE HCA 200

Introduction to Healthcare Analytics

Course Overview

This course is a paced-asynchronous course, which means that all students will be proceeding through the course at the same time with weekly deadlines. The course consists of online course materials, reading assignments, written assignments and discussion forums. The lessons open on a weekly basis throughout the quarter. The time it takes you to complete each lesson depends on your individual approach and learning style. Lesson presentations vary in length and you will spend time working on your assignments, reading, and interacting with classmates in the discussion forums.

With the increasing adoption of electronic health record systems, new forms of data are becoming available that can be used to measure healthcare delivery and improve patient outcomes. In this introductory course, participants explore the value proposition for "clinical intelligence" and the role of analytics in supporting a data- driven "learning healthcare system." Key topics include the value-driven healthcare system, measuring health system performance, existing quality/performance measurement frameworks (NQF, HEDIS), comparing healthcare delivery, attributes of high performing healthcare systems, definition and scope of business and clinical intelligence, key components of healthcare analytics, and the IT infrastructure and human capital needed to leverage analytics for health improvement.

Instructor

Tom Witmer, M.S. President and CEO, SageLegion

Tom Witmer, M.S., is the president and CEO of SageLegion, an analytics startup. He has been working in health care for more than 25 years, including as an executive leader of the shared services analytics infrastructure group at Kaiser Permanente. He also teaches *Data Mining for Analytics* in the *Healthcare Analytics Certificate Program*.

*instructors subject to rotation

Course Objectives

- Understand how the health care industry is changing, the drivers of change, and the role of data analytics in supporting the transition from fee-for-service to value-based care.
- Define how modern information technology is impacting clinical care, and the potential for future improvements.
- Describe the type of data, data aggregation infrastructure, and analytics necessary to support new workflows, care coordination applications, and care models.
- Understand clinical data structures supported by electronic health records, clinical equipment, and other datasets.
- Define clinical care processes and how technology and decision support can be used to improve processes and work flow.
- Describe how healthcare performance is measured according to existing quality frameworks [e.g., National Quality Forum (NQF), Healthcare Effectiveness Data and Information Set (HEDIS), and the Agency for Healthcare Research and Quality's (AHRQ)].
- Explain the philosophy and methods of Lean / Six Sigma and their application to healthcare performance management and improvement.
- Analyze the attributes of high performing healthcare systems.

- Discuss and contrast the various methods for comparing healthcare delivery across populations of patients.
- Understand the role of clinical integration in improving quality, safety and outcomes.
- Define and differentiate business and clinical intelligence.
- Define sources of population data, and analysis methods to perform comparative effectiveness and understand variations in how medical resources are distributed and used.
- Identify necessary competencies in an effective Analytics unit.
- Analyze examples of clinical improvement projects, and the impact of health analytics to decision- making and systems improvement.

Course Schedule

Week 1: The Changing American Healthcare System

Week 2: Technology Enabled Clinical Care

Week 3: Modern Patient Management

Week 4: Improvement Frameworks

Week 5: Measuring Health System Performance

Week 6: Enabling Healthcare Analytics

Week 7: Introduction to Business Intelligence (BI)

Week 8: Comparing Healthcare Delivery

Week 9: Forming a Healthcare Analytics Unit

Week 10: Final Exam and Course Evaluation

Time Commitment

As a general rule, plan on spending about 2-3 hours online each week, plus 2-3 hours of work outside of class on readings and assignments.

Readings

Healthcare Data Analytics: Primary Methods and Related Insights. Bob Kelley. September 23, 2019 | ISBN-10: 1694588742 | ISBN-13: 978-1694588746 | Selected readings from journal articles and other sources.

*Textbooks may change. Please refer to this course on the website for the most updated information.

Course Requirement and Teaching Strategies

Discussion Activities

Students will be required to participate in all discussion forums assigned each week. Students are encouraged, however, to regularly monitor and participate in discussion forums throughout the course, and the quality of participation will contribute to this portion of the grade. Students are encouraged to also provide context and introductory comments/observations when posting links or other resources. For full credit on discussion forum participation, students must complete all relevant posts by the end of each specific lesson or module. Posts made after the "close" of a lesson will not receive full credit.

Course Final Exam

The final exam will consist of multiple choice and short answer questions and will be posted in Week 10.

Literature Review Project

Student must choose a peer-reviewed journal article on a topic relevant to the class. The article reviewed can't be one of the assigned readings.

The literature review is intended to:

1. Summarize an article
2. Share a summary of an article important to the field of medical analytics

Grading Criteria

This course includes discussion questions, a literature review project, and a final exam designed to provide a measure, for both you and me, of your progress and evaluation of your learning through the course. The grading breakdown is as follows:

- Online Discussions – 30%
- Final Exam – 30%
- Literature Review Project – 40%

Applying coursework toward a certificate requires a grade of C (74) or better, unless otherwise noted.

Program Contact

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