

INTRODUCTION TO HEALTHCARE ANALYTICS

3 quarter units academic credit, X426.5

This is the first of five courses in the *Healthcare Analytics Certificate Program*. Explore the value proposition for clinical intelligence and the role of analytics in supporting a data-driven learning healthcare system.

COURSE OBJECTIVES

- Understand how the healthcare 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 workflow
- 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



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COURSE OBJECTIVES *continued*

- 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

REQUIRED READINGS

- Course Reader from University Readers
- Selected readings from journal articles and other sources

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

DISCUSSION FORUMS

Students will be required to participate in nine required discussion forums in response to issues/prompts presented by the instructor. However, students are encouraged to regularly monitor and participate in discussion forums throughout the quarter; 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 lesson or module. Posts made after the “close” of a lesson will not receive full credit.

COURSE SYLLABUS AND OUTLINE

INTRODUCTION TO HEALTHCARE ANALYTICS

Grading Criteria

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|-----------------------|------------|
| Discussion Forums | 30 points |
| Literature Review | 40 points |
| Final Exam | 30 points |
| Total points possible | 100 points |

PROJECT – LITERATURE REVIEW

Students 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

Literature Review Content Outline:

Students should use the following list of 10 elements as the format to create the literature review. The review should be 2-5 pages and no longer than 5 pages in length.

1. Title of article (exact), author(s) (full name), publisher's name, publication city, date of publication and number of pages.
2. Summary of content: create a high-level summary of what the article covers, including its major topics
3. Discussion of author(s):
 - What is background and experience of author(s)?
 - Why are authors qualified to write this article?
 - Do authors present a particular perspective?
4. Summarize strong points of the article.
5. Summarize weak points of the article.
6. Who should read this article? Who is the prospective audience? What background is required to understand the material?
7. Why should someone read or not read this article?
8. How would you improve the article?
9. Quotable Quote: choose a sentence or section from the article you think is well done or helps summarize the key point of the article.
10. Comment on the key implications for practice.

FINAL EXAM

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

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