Introduction to Health Care Data Analytics (DA 101)

COURSE SYLLABUS

DESCRIPTION	This course was developed in conjunction with Bellevue College with funding from the Office of the National Coordinator for Health Information Technology (ONC). This 31-hour, introductory online course provides foundational skills and knowledge in health care data analytics that will equip you to contribute more effectively to local data analytics and performance improvement efforts. The convenient online format allows you to complete weekly assignments on your own schedule. There are no pre-requisites, however basic skills in Microsoft Excel are highly recommended.
PREREQUISITES	• There are no pre-requisites for this course, however basic knowledge, and skill in the use of Microsoft Excel is highly recommended. • It is open to anyone interested in health care data analytics. • There are no course fees and no tuition requirements for the course
CREDITING	Students who successfully complete the course will receive a certificate of completion and any approved relevant accreditations. Accreditation of 31 hours offered for the following: Accreditation Council for Continuing Medical Education (ACCME); Accreditation Council for Continuing Medical Education-Nonphysician (ACCME-NP); Accreditation Council for Pharmacy Education (ACPE); American Psychological Association (APA); American Nurses Credentialing Center (ANCC); Association of Social Work Boards (ASWB); National Board for Certified Counselors (NBCC); and New York State Education Department Social Work (NYSED SW). Also approved for AMA PRA Category 1 Credit (ABPM Clinical Informatics Diplomates may request credit to-wards ABPM MOC Part 2A (LLSA) requirements). This course can also be used towards CAHIMS and CPHIMS recertification.

GOALS & OBJECTIVES:

1. Describe the tools and techniques used for data analytics in health care organizations.
2. Discuss the role of data analytics in quality and performance improvement efforts.
3. Identify techniques to communicate insights gained from data analysis

COURSE TIMEFRAMES & FORMAT:

This program includes a mix of voice over PowerPoint video lectures and online discussion as well as individual activities hosted via a learning management system called Moodle. The course website can be accessed at https://vatraining.remote-learner.net/. Students can access the course on any PC or mobile device with Internet access. Course work is primarily asynchronous (independent, self-paced). Periodic synchronous (live, real time activity) instructor-led webinars may be included and will be recorded for those who cannot attend. Students will be required to access VHA Health Informatics Online Classroom to review the lectures and complete activities, including voice over PowerPoints, quizzes, questionnaires, and online discussion forums. An extensive list of optional resources is available in each section.

UPCOMING SESSIONS:

Upcoming sessions are listed on the Introduction to Health Care Data Analytics online registration page.

COURSE EVALUATION:

There are few ways that the course is evaluated:

- Immediately after each module and the Case Study you will have the opportunity to complete an optional evaluation.
- There is a mandatory evaluation in TMS 2.0 that students must complete prior to obtaining their Certificate of Completion.

COURSE MATERIALS & REQUIRED TEXTBOOK:

This course will use the following materials:

- Recorded voice-over PowerPoint lectures
- Required readings
- Interactive learning activities, discussion forums, questionnaires, and quizzes
- Supplemental resources
- Case Study

This course will use the following textbook:

Trevor L. Strome (2013). Healthcare Analytics for Quality and Performance Improvement. John Wiley & Sons, Inc.

The textbook chapters are available for download at no cost to students via TMS 2.0 through Skillsoft Books or available for purchase online. Instructions on how to download the textbook chapters are included in the course.

COURSE CONTENT

Introduction to Quality Improvement and Data Analytics

Learning Objectives	1. Discuss the drivers for health care transformation 2. Identify quality initiatives that have shaped the national health care landscape 3. Define health care quality and value 4. Describe the background and evolution of quality and performance improvement 5. Discuss the QI frameworks that utilize analytics 6. Define health care data analytics 7. Discuss how analytics can help transform health care

---

Healthcare Data as an Organizational Asset

Learning Objectives	1. Describe the data information, knowledge, and wisdom hierarchy 2. Explain how data can be an organizational asset 3. List sources of health care data 4. Describe the challenges HCO's face when using data for quality and performance improvement 5. Describe an organizational approach for effective use of data analytics 6. Describe the role of data governance

---

Working with Data

Learning Objectives	1. Describe the information value chain 2. Discuss the importance of data context and relevance to business processes 3. Define common data types 4. Define basic statistical terms 5. Recognize common patterns or distributions in statistics

	6. Describe distributions using numerical measures such as mean, median and standard deviation 7. Identify common graphical representations of data including histograms, bar charts and scatterplots

Data Analytics Tools and Techniques

Learning Objectives	1. Define data analytics terms 2. Describe the process steps of data analytics and the tools used in each step 3. Describe the role of the data analyst 4. Identify tools and techniques used to analyze and interpret healthcare data effectively 5. Describe the various types of databases and how they are structured 6. Describe key data warehouse concepts 7. Describe enterprise data architecture as seen in health care organizations

Using Data to Solve Problems

Learning Objectives	1. Define measures, metrics, and indicators 2. Describe the purpose and use of Key Performance Indicators (KPI's) 3. Describe how health care organizations use the IHI Triple Aim to prioritize performance goals 4. Describe the DMAIC problem-solving model and the tools and techniques used in each step of the process 5. Apply the DMAIC methodology to a health care issue

Using Data to Tell the Story

Learning Objectives	1. Describe ways to effectively display data for improved comprehension 2. Select appropriate options for displaying information 3. Identify background information that should be included in reports 4. Determine what information stakeholders want and need to know 5. Determine the best ways to communicate information with specific audiences

ACADEMIC HONESTY

It is expected that students will complete the required discussion forums, knowledge checks and other assignments as outlined in the lesson to demonstrate that they have learned the course material. The Moodle learning management system tracks student activity including visits to each page, quiz attempts, activity completion, etc., which can be used to independently validate course completion. Responses to assignments, quizzes and exams will be based on the student's own work (except for assignments that explicitly include collaboration). It is expected that students will properly cite any references or works that are not their own and honor any intellectual property rights including copyrights and trademarks.

COURSE SUPPORT

TECHNICAL SUPPORT:

For technical issues such as problems with registration, access to course or Moodle issues, there is an email available to students: vhahi2certhelp@va.gov. Students also have the option of using the Technical Support or the Contact the Faculty Forums from within the course.

PLANNING COMMITTEE:

Department of Veterans Affairs: Katherine Gianola, MD, MS, Diane Bedecarré, RN MS, CPHIMS, Elizabeth Chapman, MS, CPHIMS, Kathleen Brandt, RN MS, RN-BC, PMP, Danielle Marano, RN, MSN, Jennifer Kalman, MBA, CPHIMS, Adelaide Quansah-Arku, BSBA, CPM, Daphen Shum, BS.Pharm, Tom Fagan, BS.Pharm, MBA, Serge LaCerte, MS, CPIM, MLSSBB, Ron Freyberg, MS, Jessica Hill, MHA. Rob Silverman, PharmD, Debra Macdonald, RPh., Manuel E. Garcia, Ph.D.

Bellevue College: Margaret Murphy, M.A., Vivian Todhunter, Heather Neikirk

---

This material was developed through a collaboration of Bellevue College and the Veterans Health Administration, with Bellevue College funded by the Department of Health and Human Services, Office of the National Coordinator for Health Information Technology under Award Number 90WT0002.