Syllabus

Course Overview

The richness of data within health care organizations provides exceptional value as to what we can learn. It is essential to the future of health care to ensure data can be analyzed and used as information for the improvement of health care outcomes and optimization of health care delivery. Health care information systems assist us in capitalizing on the value of data as information.

Informatics professionals are in a unique position to assist in the appropriate use of data to develop practical information for many health care settings. Clinician informaticians have an advantage because they understand the essential aspects of using data for knowledge that enhance care delivery and patient outcomes.

In this course, we will explore the concept of data, the development of information, the conversion of this information into knowledge, and, finally, the attainment of wisdom through the assessment of data.

APA Style Resources

Capella University uses the most current edition of the *Publication Manual of the American Psychological Association* (commonly referred to as the APA Manual) as its style guide for scholarly writing. Using a single publication manual ensures a consistent style across degrees, programs, and schools, and the APA style is well respected and widely used in scholarly works and academic publications.

For your program, Capella University provides a selection of online resources designed to help you understand the APA style and use it effectively. Please visit Capella's APA Module for more information.

Video Presentation

As a part of this course, you are required to record and upload a video presentation. You may use Kaltura Media or other technology of your choice. Refer to Using Kaltura for more information about this courseroom tool.

To record your presentation, you will need a built-in or external microphone and a webcam. See Unit 5 for more information and make sure you set up and test your equipment before beginning this assignment.

Note: If you require the use of assistive technology or alternative communication methods to participate in this activity, please contact DisabilityServices@capella.edu to request accommodations.

Course Competencies **(Read Only)**

To successfully complete this course, you will be expected to:

1. Apply data management techniques to decision making in nursing practice.
2. Create various data representation methods for reporting and professional communications.
3. Articulate strategies for querying and generating reports from health information system databases.
4. Communicate technical standards as they relate to various informatics technologies.
5. Communicate as a practitioner-scholar, consistent with the expectations of a nursing professional.

Course Prerequisites

Prerequisite(s): MSN6410.

Syllabus ›› Course Materials

Required

The materials listed below are required to complete the learning activities in this course.

Integrated Materials

Many of your required books are available via the VitalSource Bookshelf link in the courseroom, located in your Course Tools. Registered learners in a Resource Kit program can access these materials using the courseroom link on the Friday before the course start date. Some materials are available only in hard-copy format or by using an access code. For these materials, you will receive an email with further instructions for access. Visit the Course Materials page on Campus for more information.

Book

McGonigle, D., & Mastrian, K. (2018). *Nursing informatics and the foundation of knowledge* (4th ed.). Burlington, MA: Jones & Bartlett. ISBN: 9781284121247.

Library

The following required readings are provided in the Capella University Library or linked directly in this course. To find specific readings by journal or book title, use Journal and Book Locator. Refer to the Journal and Book Locator library guide to learn how to use this tool.

- Ahmed, S., Seddawy, A. I. E., & Nasr, M. (2019). A proposed framework for detecting and predicting diseases through business intelligence applications. *International Journal of Advanced Networking and Applications*, *10*(4), 3951–3957.
- American Nurses Association. (2015). *Nursing informatics: Scope and standards of practice* (2nd ed.). Silver Spring, MD: Author.
- Ansaripour, A., Zendehdel, K., Tadayon, N., Sadeghi, F., Uyl-de Groot, C. A., & Redekop, W. K. (2018). Use of data-mining to support real-world cost analyses: An example using HER2-positive breast cancer in Iran. *PloS One*, *13*(10), 1–16.
- Bahri, S., Zoghlami, N., Abed, M., & Tavares, J. M. (2018, December 21). Big data for healthcare: A survey. *IEEE Access*, *7*, 7397–7408.
- Bjarnadottir, R. I., Bockting, W., Yoon, S., & Dowding, D. W. (2019). Nurse documentation of sexual orientation and gender identity in home healthcare: A text mining study. *CIN: Computers, Informatics, Nursing*, *37*(4), 213–221.
- Dautov, R., Distefano, S., & Buyya, R. (2019). Hierarchical data fusion for smart healthcare. *Journal of Big Data*, *6*(1), 1–23.
- David, H. B. F., & Belcy, S. A. (2018). Heart disease prediction using data mining techniques. *ICTACT Journal on Soft Computing*, *9*(1), 1817–1823.
- El aboudi, N., & Benhlima, L. (2018). Big data management for healthcare systems: Architecture, requirements, and implementation. *Advances in Bioinformatics*, *2018*, 1–10.

- Favaretto, M., de Clercq, E., & Elger, B. S. (2019). Big data and discrimination: Perils, promises and solutions. A systematic review. *Journal of Big Data*, *6*(1), 1–27.
- Ghorbani, R., & Ghousi, R. (2019). Predictive data mining approaches in medical diagnosis: A review of some diseases prediction. *International Journal of Data and Network Science*, *3*(2), 47–70.
- Gurgen Erdogan, T., & Tarhan, A. (2018). A goal-driven evaluation method based on process mining for healthcare processes. *Applied Sciences*, *8*(6), 1–22.
- Hoyle, P. (2019). Health information is central to changes in healthcare: A clinician's view. *Health Information Management Journal*, 48(1), 48–51.
- Ienca, M., Ferretti, A., Hurst, S., Puhan, M., Lovis, C., & Vayena, E. (2018). Considerations for ethics review of big data health research: A scoping review. *PloS One*, *13*(10), 1–15.
- Ismail, W. N., Hassan, M. M., Alsalamah, H. A., & Fortino, G. (2018, August 1). Mining productive-periodic frequent patterns in tele-health systems. *Journal of Network and Computer Applications*, *115*, 33–47.
- Jones, M. (2019). What we talk about when we talk about (big) data. *Journal of Strategic Information Systems*, *28*(1), 3–16.
- Jungwirth, D., & Haluza, D. (2019). Information and communication technology and the future of healthcare: Results of a multi-scenario Delphi survey. *Health Informatics Journal*, *25*(1), 161–173.
- Kodra, Y., Weinbach, J., Posada-de-la-Paz, M., Coi, A., Lemonnier, S. L., van Enckevort, D., ... Taruscio, D. (2018). Recommendations for improving the quality of rare disease registries. *International Journal of Environmental Research and Public Health*, *15*(8), 1–22.
- Krempel, R., Kulkarni, P., Yim, A., Lang, U., Habermann, B., & Frommolt, P. (2018). Integrative analysis and machine learning on cancer genomics data using the Cancer Systems Biology Database (CancerSysDB). *BMC Bioinformatics*, *19*(1), 1–10.
- Kurniati, A. P., Rojas, E., Hogg, D., Hall, G., & Johnson, O. A. (2018, November 29). The assessment of data quality issues for process mining in healthcare using Medical Information Mart for Intensive Care III, a freely available e-health record database. *Health Informatics Journal*, 1–16.
- Mackey, T. K., Kuo, T., Gummadi, B., Clauson, K. A., Church, G., Grishin, D., . . . Palombini, M. (2019). 'Fit-for-purpose?' – Challenges and opportunities for applications of blockchain technology in the future of healthcare. *BMC Medicine*, *17*(1), 1–17.
- Mollayeva, T., Sutton, M., Chan, V., Colantonio, A., Jana, S., & Escobar, M. (2019). Data mining to understand health status preceding traumatic brain injury. *Scientific Reports*, *9*(1), 1–10.
- Muangsrinoon, S., & Boonbrahm, P. (2019). Game elements from literature review of gamification in healthcare context. *Journal of Technology and Science Education*, *9*(1), 20–31.
- Regan, M., Engler, M. B., Coleman, B., Daack-Hirsch, S., & Calzone, K. A. (2019). Establishing the genomic knowledge matrix for nursing science. *Journal of Nursing Scholarshi*p, *51*(1), 50–57.
- Researchers from Council of Scientific and Industrial Research (CSIR) report details of new studies and findings in the area of information and data mining (runoff prediction using big data analytics based on ARIMA model). (2019, January 22). *Information Technology Newsweekly*.
- Ristevski, B., & Chen, M. (2018). Big data analytics in medicine and healthcare. *Journal of Integrative Bioinformatics*, *15*(3), 1–5.
- Sandhu, R., Kaur, N., Sood, S. K., & Buyya, R. (2018). TDRM: Tensor-based data representation and mining for healthcare data in cloud computing environments. *The Journal of Supercomputing*, *74*(2), 592–614.
- Seyhan, A. A., & Carini, C. (2019). Are innovation and new technologies in precision medicine paving a new era in patients centric care? *Journal of Translational Medicine*, *17*(114), 1–28.
- Shameer, K., Perez-Rodriguez, M. M., Bachar, R., Li, L., Johnson, A., Johnson, K. W., . . . Dudley, J. T. (2018). Pharmacological risk factors associated with hospital readmission rates in a psychiatric cohort identified using prescriptome data mining. *BMC Medical Informatics and Decision Making*, *18*(Suppl. 3), 1–19.
- Sharma, M., Singh, G., & Singh, R. (2018). An advanced conceptual diagnostic healthcare framework for diabetes and cardiovascular disorders. *EAI Endorsed Transactions on Scalable Information Systems*, *5*(18), 1–11.
- Shepheard, J. (2019). Ethical leadership and why health information management professionals need to be involved. Commentary on *Health Information Is Central to Changes in Healthcare*: *A Clinician's View* (Hoyle, 2019). *Health Information Management Journal*, *48*(1), 52–55.
- Shi, J., Zheng, M., Yao, L., & Ge, Y. (2018). Developing a healthcare Dataset Information Resource (DIR) based on semantic web. *BMC Medical Genomics*, *11*(Suppl. 5), 1–14.
- Soleimani-Roozbahani, F., Ghatari, A. R., & Radfar, R. (2019). Knowledge discovery from a more than a decade studies on healthcare big data systems: A scientometrics study. *Journal of Big Data*, *6*(1), 1–15.
- Vial, G. (2019). Understanding digital transformation: A review and a research agenda. *The Journal of Strategic Information Systems*, *28*(2), 118–144.
- Wang, J., Gephart, S. M., Mallow, J., & Bakken, S. (2019). Models of collaboration and dissemination for nursing informatics innovations in the 21st century. *Nursing Outlook, 67*(4), 419–432.
- Yang, J., Zhang, S., Zhang, J., Dong, J., Wu, J., Zhang, L., . . . Wu, F. (2018). Identification of key genes and pathways using bioinformatics analysis in septic shock children. *Infection and Drug Resistance*, *11*, 1163–1174.
- Yoo, S., Kim, S., Kim, E., Jung, E., Lee, K., & Hwang, H. (2018). Real-time location system-based asset tracking in the healthcare field: Lessons learned from a feasibility study. *BMC Medical Informatics and Decision Making*, *18*(80), 1–10.
- Zhang, K., Kong, X., Feng, G., Xiang, W., Chen, L., Yang, F., . . . Zhang, B. (2018). Investigation of hypoxia networks in ovarian cancer via bioinformatics analysis. *Journal of Ovarian Research*, *11*(16), 1–11.
- Zhang, X., Wang, S., Cong, G., & Cuzzocrea, A. (2019). Social big data: Mining, applications, and beyond. *Complexity*, *2019*, 1–2.

Suggested

The following materials are recommended to provide you with a better understanding of the topics in this course. These materials are not required to complete the course, but they are aligned to course activities and assessments and are highly recommended for your use.

Optional

The following optional materials are offered to provide you with a better understanding of the topics in this course. These materials are not required to complete the course.

Unit 1 >> Tools, Models, and Analysis

Introduction

Informatics professionals use structure to design, develop, and implement change. The structure comes in the form of a model. There are several informatics models that can be applied to develop interventions resulting in enhanced care. By using steps provided in a model, you can create new processes that lead to the end goal of enhancing data use. Enhanced data use can result in new knowledge to support improved care delivery.

Learning Activities

u01s1 - Studies

Readings

Models, Tools, and Data Exploration

The readings this week focus on the collection and use of data to monitor and produce quality outcomes.

- In the *Nursing Informatics and the Foundation of Knowledge* text:
  - Chapter 21, "Nursing Research: Data Collection, Processing, and Analysis," pages 462–475.
- Researchers from Council of Scientific and Industrial Research (CSIR) report details of new studies and findings in the area of information and data mining (runoff prediction using big data analytics based on ARIMA model). (2019, January 22). *Information Technology Newsweekly*.
- Ristevski, B., & Chen, M. (2018). Big data analytics in medicine and healthcare. *Journal of Integrative Bioinformatics*, *15*(3), 1–5.

Scope and Standards

Use this standard text as appropriate throughout the course to support discussions and assignments.

- American Nurses Association. (2015). *Nursing informatics: Scope and standards of practice* (2nd ed.). Silver Spring, MD: Author.

Library Guides

- Throughout this course, you are encouraged to use the MSN Program Library Research Guide for valuable resources related to the MSN specialization.

u01d1 - Informatics Models

We use models in informatics to create a guide to effect change. What is one model you could apply in practice now to effect change? Explain the structure and process steps of the model and how you would go about developing and implementing an intervention using the model.

Response Guidelines

Review the posts of your fellow learners and respond according to the FEM guidelines. In your response, you must do one or a combination of the following:

- Ask an analytical question.
- Offer a suggestion.
- Elaborate on a particular point.
- Provide an alternative opinion supported with scholarly references.

Initial Discussion and Response Guidelines: Remember to adhere to the requirements for unit discussion postings and peer responses addressed in the School of Nursing and Health Sciences Faculty Expectations Message (FEM).

You must make reference to the work of another writer (either as a quotation, paraphrase, or summary) to provide support for your ideas. The source can be the course text, another relevant book, any assigned readings, or an article you find on your own through the Capella Library. When you incorporate the other writer's ideas in your work, use APA citation style to give credit to that writer. Remember that an APA citation includes both the in-text citation (the author's last name and the year of publication) and the full reference for the source.

Course Resources

Graduate Discussion Participation Scoring Guide

u01d2 - Tools for Analysis

As you think about the technology tools (such as software and hardware) you could use to create an analysis, develop a specific example using one tool to show how to develop an analysis by processing data.

Response Guidelines

Review the posts of your fellow learners and respond according to the FEM guidelines. In your response, you must do one or a combination of the following:

- Ask an analytical question.
- Offer a suggestion.
- Elaborate on a particular point.
- Provide an alternative opinion supported with scholarly references.

Initial Discussion and Response Guidelines: Remember to adhere to the requirements for unit discussion postings and peer responses addressed in the School of Nursing and Health Sciences Faculty Expectations Message (FEM).

You must make reference to the work of another writer (either as a quotation, paraphrase, or summary) to provide support for your ideas. The source can be the course text, another relevant book, any assigned readings, or an article you find on your own through the Capella Library. When you incorporate the other writer's ideas in your work, use APA citation style to give credit to that writer. Remember that an APA citation includes both the in-text citation (the author's last name and the year of publication) and the full reference for the source.

Course Resources

Graduate Discussion Participation Scoring Guide

Unit 2 >> Producing Applications in Practice With Tools

Introduction

Informatics tools help to define choices related to data creation, collection, and analysis. Once new information is developed with data processes, knowledge can be disseminated to help create understanding of outcomes in the care delivery environment. Also, the dissemination of information gives rise to stakeholder engagement and focuses the interprofessional team on the importance of collaboration to enhance care delivery.

Learning Activities

u02s1 - Studies

Readings

This week's readings focus on using data mining as a process to help foster change. As you read these resources, reflect on these questions: Why was specific data collected at specific points in time? What was important about how data were used?

- In the *Nursing Informatics and the Foundation of Knowledge* text:
  - Chapter 22, "Data Mining as a Research Tool," pages 476–493.
- Bahri, S., Zoghlami, N., Abed, M., & Tavares, J. M. (2018, December 21). Big data for healthcare: A survey. *IEEE Access*, *7*, 7397–7408.
- Dautov, R., Distefano, S., & Buyya, R. (2019). Hierarchical data fusion for smart healthcare. *Journal of Big Data*, *6*(1), 1–23.
- Sharma, M., Singh, G., & Singh, R. (2018). An advanced conceptual diagnostic healthcare framework for diabetes and cardiovascular disorders. *EAI Endorsed Transactions on Scalable Information Systems*, *5*(18), 1–11.

u02s2 - Assignment Preparation

Start preparing for your Unit 3 assignment, Conference Poster Presentation, by completing the following:

1. Identify the specialty organization's conference (for example, Sigma Theta Tau International [STTI], American Organization for Nursing Leadership [AONL], American Nurses Association [ANA], or the National League for Nurses [NLN]) for your poster presentation and locate a copy of their guidelines for conference presentations.
2. Identify a topic for your presentation that analyzes the use of data management and data trending to assess, monitor, and produce quality outcomes.

Review the Unit 3 assignment scoring guide to ensure you understand the grading criteria for this assignment.

u02d1 - Monitoring Interventions

Examine the technology (software and hardware) that are used in informatics and identify a tool you would use today to monitor and evaluate an intervention. Why did you pick that tool?

Response Guidelines

Review the posts of your fellow learners and respond according to the FEM guidelines. In your response, you must do one or a combination of the following:

- Ask an analytical question.
- Offer a suggestion.
- Elaborate on a particular point.
- Provide an alternative opinion supported with scholarly references.

Initial Discussion and Response Guidelines: Remember to adhere to the requirements for unit discussion postings and peer responses addressed in the School of Nursing and Health Sciences Faculty Expectations Message (FEM).

You must make reference to the work of another writer (either as a quotation, paraphrase, or summary) to provide support for your ideas. The source can be the course text, another relevant book, any assigned readings, or an article you find on your own through the Capella Library. When you incorporate the other writer's ideas in your work, use APA citation style to give credit to that writer. Remember that an APA citation includes both the in-text citation (the author's last name and the year of publication) and the full reference for the source.

Course Resources

Graduate Discussion Participation Scoring Guide

u02d2 - Disseminating Information

After monitoring and evaluating an intervention, it is time to share the knowledge you have acquired with others.

- What is your first step in disseminating information to your stakeholders?
- Describe two things to be mindful about when presenting information to a specific group.

Response Guidelines

Review the posts of your fellow learners and respond according to the FEM guidelines. In your response, you must do one or a combination of the following:

- Ask an analytical question.
- Offer a suggestion.
- Elaborate on a particular point.
- Provide an alternative opinion supported with scholarly references.

Initial Discussion and Response Guidelines: Remember to adhere to the requirements for unit discussion postings and peer responses addressed in the School of Nursing and Health Sciences Faculty Expectations Message (FEM).

You must make reference to the work of another writer (either as a quotation, paraphrase, or summary) to provide support for your ideas. The source can be the course text, another relevant book, any assigned readings, or an article you find on your own through the Capella Library. When you incorporate the other writer's ideas in your work, use APA citation style to give credit to that writer. Remember that an APA citation includes both the in-text citation (the author's last name and the year of publication) and the full reference for the source.

Course Resources

Graduate Discussion Participation Scoring Guide

Unit 3 >> Knowledge Exploration and Data Mining

Introduction

Data mining supports knowledge exploration. In addition, validated data defines knowledge for application in practice. Using data mining techniques with database use, data management, and data trending supports the enhancement of knowledge for decision making about care delivery.

Learning Activities

u03s1 - Studies

Readings

This week's readings continue to focus on developing organizational change through data mining. As you read this week's readings, consider these questions: How did information get to the stakeholders, what was shared, and why was it shared?

- In the *Nursing Informatics and the Foundation of Knowledge* text:
  - Chapter 26, "Nursing Informatics and the Foundation of Knowledge," pages 536–551.
- Mollayeva, T., Sutton, M., Chan, V., Colantonio, A., Jana, S., & Escobar, M. (2019). Data mining to understand health status preceding traumatic brain injury. *Scientific Reports*, *9*(1), 1–10.
- Sandhu, R., Kaur, N., Sood, S. K., & Buyya, R. (2018). TDRM: Tensor-based data representation and mining for healthcare data in cloud computing environments. *The Journal of Supercomputing*, *74*(2), 592–614.
- Zhang, X., Wang, S., Cong, G., & Cuzzocrea, A. (2019). Social big data: Mining, applications, and beyond. *Complexity*, *2019*, 1–2

u03s2 - MSN Practicum

Once you complete all specialization courses in your MSN program, you will be eligible to enroll in your MSN Practicum. To prepare for this experience, you will want to review the MSN Practicum page and begin the application process, which will be submitted through a cloud-based experiential learning management system (see below for additional context). Your site and preceptor should be approved well before you start your practicum course (at least 2–3 months). If your site requires a formal affiliation agreement (please see the "Affiliation Agreements" tab on the MSN Practicum page), please initiate this process as soon as possible. If your site requires additional requirements (such as an additional background check, drug screen, trainings, immunization status confirmations, etc.), we will notify you and help you through this process.

All of these steps may take several weeks to months to complete, so please ensure your program progression is not delayed by submitting all requirements as soon as possible for review/approval.

During your MSN Practicum, you will be required to submit multiple artifacts and documents for successful course completion. This may include items like time logs, site evaluations, preceptor evaluations, and other projects unique to this course.

Capella has partnered with CORE Higher Education Group, to provide a cloud-based experiential learning management system (ELMS) to support learners during practicum. CORE ELMS , hereinafter referred to as CORE ELMS, provides a safe and secure repository to house forms and other coursework that requires visibility and input from third parties (such as preceptors).

While you will still be submitting assignments to your instructor via your practicum courseroom, you will be instructed specifically where and when content should be submitted to CORE ELMS. Read your assignments carefully for directions and contact your instructor with any questions.

u03a1 - Conference Poster Presentation

For this assignment, you will prepare both an abstract proposal for a poster presentation and a poster presentation for a specialty organization's conference (for example, STTI, AONL, ANA, or NLN). Your topic will be to explore a specific situation using an informatics model, tools, and application of data in practice to assess, monitor, and produce quality outcomes. For this assignment, think about the clear use of database terminology, data management, and data trending, and how to communicate clearly with your stakeholders and conference attendees.

Instructions

- Analyze the use of an informatics model, tools, and use of data to produce quality outcomes.
  - Identify the organization at whose conference you would be presenting and locate a copy of their guidelines for conference presentations.
  - Identify a topic for your presentation that analyzes the use of data management and data trending to assess, monitor, and produce quality outcomes.
- Assess the use of data terminology, data management, and data trending to show enhanced health care delivery outcomes.
  - Create an abstract for your poster presentation that includes:
    - An introduction.
    - A literature review highlighting the important concepts in the literature that support your idea.
    - An analysis of the intervention/model for change.
    - Conclusions drawn about data use and the health care delivery outcomes.
- Synthesize information for clear communication with stakeholders and conference attendees.
  - Create a professional poster presentation, geared to your audience, that provides a visual representation of the information in the abstract.
  - Limit your poster to a one-slide presentation.

Additional Requirements

- Part 1: Abstract:
  - **Length of abstract**: 250 words.
  - **Font and font size**: Times New Roman, 12 point.
  - **Reference:** Five scholarly sources that support the written abstract. Additional references may be used.
  - **Written communication:** Written communication is free of errors that detract from the overall message.
  - **APA formatting:** Resources and citations are formatted according to current APA style and formatting.

- Part 2: Poster Presentation:
    - **Visual Properties**: Make use of graphs, charts, models, et cetera that visually demonstrate the content of your presentation as described by the abstract.
    - **Length of presentation**: One slide.

Submit your paper to the assignment area for grading.

Grading Criteria and Competency Alignment

The assignment instructions correspond to the grading criteria in the Conference Poster Presentation scoring guide. You may also want to review the performance level descriptions for each criterion to see how your work will be assessed.

- Competency 1: Apply data management techniques to decision making in nursing practice.
    - Analyze the use of an informatics model, tools, and use of data to produce quality outcomes.
- Competency 2: Create various data representation methods for reporting and professional communications.
    - Create a professional poster that includes an introduction, literature review, model for change, data conclusions, and references.
- Competency 3: Articulate strategies for querying and generating reports from health information system databases.
    - Assess the use of data terminology, data management, and data trending to show enhanced health care delivery outcomes.
- Competency 4: Communicate technical standards as they relate to various informatics technologies.
    - Synthesize the use of information for clear communication with stakeholders and conference attendees.
- Competency 5: Communicate as a practitioner-scholar, consistent with the expectations of a nursing professional.
    - Write clearly and logically with correct use of spelling, grammar, punctuation, and mechanics, and correctly formats citations using current APA style.

u03d1 - Data Mining

What are two data mining techniques and how would you apply them in practice to explore outcomes?

Response Guidelines

Review the posts of your fellow learners and respond according to the FEM guidelines. In your response, you must do one or a combination of the following:

- Ask an analytical question.
- Offer a suggestion.
- Elaborate on a particular point.
- Provide an alternative opinion supported with scholarly references.

Initial Discussion and Response Guidelines: Remember to adhere to the requirements for unit discussion postings and peer responses addressed in the School of Nursing and Health Sciences Faculty Expectations Message (FEM).

You must make reference to the work of another writer (either as a quotation, paraphrase, or summary) to provide support for your ideas. The source can be the course text, another relevant book, any assigned readings, or an article you find on your own through the Capella Library. When you incorporate the other writer's ideas in your work, use APA citation style to give credit to that writer. Remember that an APA citation includes both the in-text citation (the author's last name and the year of publication) and the full reference for the source.

Course Resources

Graduate Discussion Participation Scoring Guide

Unit 4 >> Producing Applications in Practice With Data

Introduction

In practice we use data to define health care delivery outcomes. Data are defined, tracked, and monitored on a scheduled basis to understand patient care outcomes. The outcomes that we seek stem from evidence-based care. Evidence-based care is created by research that is translated into practice and supported by experts. Evidence-based care that is defined by experts in each patient care specialty can be found on specialty care websites, such as the Agency for Healthcare Research and Quality (AHRQ) and the Institute for Healthcare Improvement (IHI). This is where data are defined to help ensure how to collect, track, and monitor outcomes using best practice to achieve benchmarks.

Learning Activities

u04s1 - Studies

Readings

The readings in this unit, and the next two units, focus on how evidence in the form of data are used to support strategy for change. As you read, consider the following question: What did you find related to the practical applications for using data?

- In the *Nursing Informatics and the Foundation of Knowledge* text:
  - Chapter 23, "Translational Research: Generating Evidence for Practice," pages 495–507.
- Kurniati, A. P., Rojas, E., Hogg, D., Hall, G., & Johnson, O. A. (2018, November 29). The assessment of data quality issues for process mining in healthcare using Medical Information Mart for Intensive Care III, a freely available e-health record database. *Health Informatics Journal*, 1–16.
- Shameer, K., Perez-Rodriguez, M. M., Bachar, R., Li, L., Johnson, A., Johnson, K. W., . . . Dudley, J. T. (2018). Pharmacological risk factors associated with hospital readmission rates in a psychiatric cohort identified using prescriptome data mining. *BMC Medical Informatics and Decision Making*, *18*(Suppl. 3), 1–19.
- Vial, G. (2019). Understanding digital transformation: A review and a research agenda. *The Journal of Strategic Information Systems*, *28*(2), 118–144.

u04d1 - Monitoring Specific Service Lines

Identify a specific service line of care delivery and discuss the particular data mining activities that are most important to consider when using data to monitor outcomes for that service line. Consider things such as monitoring and evaluation periods, types of data tracked, and achieving best outcomes.

Explain why you chose those activities and parameters.

Response Guidelines

Review the posts of your fellow learners and respond according to the FEM guidelines. In your response, you must do one or a combination of the following:

- Ask an analytical question.
- Offer a suggestion.
- Elaborate on a particular point.
- Provide an alternative opinion supported with scholarly references.

Initial Discussion and Response Guidelines: Remember to adhere to the requirements for unit discussion postings and peer responses addressed in the School of Nursing and Health Sciences Faculty Expectations Message (FEM).

You must make reference to the work of another writer (either as a quotation, paraphrase, or summary) to provide support for your ideas. The source can be the course text, another relevant book, any assigned readings, or an article you find on your own through the Capella Library. When you incorporate the other writer's ideas in your work, use APA citation style to give credit to that writer. Remember that an APA citation includes both the in-text citation (the author's last name and the year of publication) and the full reference for the source.

Course Resources

Graduate Discussion Participation Scoring Guide

u04d2 - Best Practice in Data Mining

If you had to analyze best practices for using data to define outcomes in your organization, where would you start? Remember to consider national and organization benchmarks, and organizational goals.

Response Guidelines

Review the posts of your fellow learners and respond according to the FEM guidelines. In your response, you must do one or a combination of the following:

- Ask an analytical question.
- Offer a suggestion.
- Elaborate on a particular point.
- Provide an alternative opinion supported with scholarly references.

Initial Discussion and Response Guidelines: Remember to adhere to the requirements for unit discussion postings and peer responses addressed in the School of Nursing and Health Sciences Faculty Expectations Message (FEM).

You must make reference to the work of another writer (either as a quotation, paraphrase, or summary) to provide support for your ideas. The source can be the course text, another relevant book, any assigned readings, or an article you find on your own through the Capella Library. When you incorporate the other writer's ideas in your work, use APA citation style to give credit to that writer. Remember that an APA citation includes both the in-text citation (the author's last name and the year of publication) and the full reference for the source.

Course Resources

Graduate Discussion Participation Scoring Guide

Unit 5 >> Evidenced-Based Development

Introduction

Organized data can support and show a clear path to the evaluation of outcomes. By thoughtfully defining, collecting, monitoring, and storing data, an informaticist can create a pool of organized information that can be classified and disseminated. It is essential to be able to validate where information comes from so it can be used with responsible and accountable intent.

Learning Activities

u05s1 - Studies

Reading

As you read this week, consider the question: How did the practical use of information help to build stakeholder engagement?

- Ansaripour, A., Zendehdel, K., Tadayon, N., Sadeghi, F., Uyl-de Groot, C. A., & Redekop, W. K. (2018). Use of data-mining to support real-world cost analyses: An example using HER2-positive breast cancer in Iran. *PloS One*, *13*(10), 1–16.
- Bjarnadottir, R. I., Bockting, W., Yoon, S., & Dowding, D. W. (2019). Nurse documentation of sexual orientation and gender identity in home healthcare: A text mining study. *CIN: Computers, Informatics, Nursing*, *37*(4), 213–221.
- Ghorbani, R., & Ghousi, R. (2019). Predictive data mining approaches in medical diagnosis: A review of some diseases prediction. *International Journal of Data and Network Science*, *3*(2), 47–70.
- Shi, J., Zheng, M., Yao, L., & Ge, Y. (2018). Developing a healthcare Dataset Information Resource (DIR) based on semantic web. *BMC Medical Genomics*, *11*(Suppl. 5), 1–14.

u05s2 - Assignment Preparation

Start preparing for your Unit 5 assignment, Video Presentation and Spreadsheet: Proposal to Administration, by completing the following:

1. Identify the service line that you will be monitoring.
2. Begin to collect data from your organization or elsewhere to populate the spreadsheet.

View the Video Presentation and Spreadsheet: Proposal to Administration assignment description and its scoring guide to ensure you understand the grading criteria for this assignment.

Audiovisual Equipment Setup and Testing

To record the video of your presentation, you will need built-in or external microphone, and a webcam or other video camera.

If you have not already done so, set up and test your audiovisual equipment (microphone, webcam, and video camera), using the installation instructions provided by the manufacturer, to ensure the audio and video quality is sufficient. In either case, you may use Kaltura Media or other technology of your choice for your audio or video recording. However, any tools other than Kaltura should be cleared with your instructor prior to using.

- If using Kaltura Media, refer to Using Kaltura for directions on recording and uploading your video in the courseroom.

Note: If you require the use of assistive technology or alternative communication methods to participate in this activity, please contact DisabilityServices@Capella.edu to request accommodations.

u05d1 - Examples of Best Practices in Data Mining

Detail an example of using evidence-based practice to develop data use for an organization, practice setting, or specific care delivery service line.

Response Guidelines

Review the posts of your fellow learners and respond according to the FEM guidelines. In your response, you must do one or a combination of the following:

- Ask an analytical question.
- Offer a suggestion.
- Elaborate on a particular point.
- Provide an alternative opinion supported with scholarly references.

Initial Discussion and Response Guidelines: Remember to adhere to the requirements for unit discussion postings and peer responses addressed in the School of Nursing and Health Sciences Faculty Expectations Message (FEM).

You must make reference to the work of another writer (either as a quotation, paraphrase, or summary) to provide support for your ideas. The source can be the course text, another relevant book, any assigned readings, or an article you find on your own through the Capella Library. When you incorporate the other writer's ideas in your work, use APA citation style to give credit to that writer. Remember that an APA citation includes both the in-text citation (the author's last name and the year of publication) and the full reference for the source.

Course Resources

Graduate Discussion Participation Scoring Guide

u05d2 - Organizing Data

How would you organize data to show best practice for data use?

Response Guidelines

Review the posts of your fellow learners and respond according to the FEM guidelines. In your response, you must do one or a combination of the following:

- Ask an analytical question.
- Offer a suggestion.
- Elaborate on a particular point.
- Provide an alternative opinion supported with scholarly references.

Initial Discussion and Response Guidelines: Remember to adhere to the requirements for unit discussion postings and peer responses addressed in the School of Nursing and Health Sciences Faculty Expectations Message (FEM).

You must make reference to the work of another writer (either as a quotation, paraphrase, or summary) to provide support for your ideas. The source can be the course text, another relevant book, any assigned readings, or an article you find on your own through the Capella Library. When you incorporate the other writer's ideas in your work, use APA citation style to give credit to that writer. Remember that an APA citation includes both the in-text citation (the author's last name and the year of publication) and the full reference for the source.

Course Resources

Graduate Discussion Participation Scoring Guide

Unit 6 >> Producing Applications in Practice With Evidence-Based Information

Introduction

Data needs to be displayed in a manner that is organized, easy to understand, and ready to disseminate. This is important so the interprofessional team who actually delivers care can comprehend the use of data to enhance care. By managing data to extrapolate information for stakeholders to use, we can build engagement with the interprofessional team to develop and sustain evidenced-based care delivery.

Learning Activities

u06s1 - Studies

Readings

As you plan for this week's assignment, read with this in mind: Envision how leaders in these situations bring forth complex ideas by simplifying how to analyze and share information.

- Ahmed, S., Seddawy, A. I. E., & Nasr, M. (2019). A proposed framework for detecting and predicting diseases through business intelligence applications. *International Journal of Advanced Networking and Applications*, *10*(4), 3951–3957.
- Ismail, W. N., Hassan, M. M., Alsalamah, H. A., & Fortino, G. (2018, August 1). Mining productive-periodic frequent patterns in tele-health systems. *Journal of Network and Computer Applications*, *115*, 33–47.
- Jones, M. (2019). What we talk about when we talk about (big) data. *Journal of Strategic Information Systems*, *28*(1), 3–16.
- Soleimani-Roozbahani, F., Ghatari, A. R., & Radfar, R. (2019). Knowledge discovery from a more than a decade studies on healthcare big data systems: A scientometrics study. *Journal of Big Data*, *6*(1), 1–15.
- Yoo, S., Kim, S., Kim, E., Jung, E., Lee, K., & Hwang, H. (2018). Real-time location system-based asset tracking in the healthcare field: Lessons learned from a feasibility study. *BMC Medical Informatics and Decision Making*, *18*(80), 1–10.

u06a1 - Video Presentation and Spreadsheet: Proposal to Administration

To develop strategies for service line development, leaders need to know how to monitor outcomes that provide pertinent information in support of strategic development. Leaders then need to be skilled at communicating their analysis of those outcomes to other leaders in the organization in order to create awareness and build support for any proposed strategies arising from the analysis.

For this assignment, you will record a video presentation in which you describe how and why you are monitoring the outcomes for a particular service line in order to improve care. You will begin by creating a spreadsheet that contains the pertinent data categories and illustrates data trending over time.

Instructions

Create a spreadsheet:

- Analyze the what, why, and how to measure for a specific quality outcome related to a service line in a practice setting or organization.
    - Chose a specific quality outcome related to a service line in a practice setting or organization.
    - Identify the benchmarks associated with that outcome and how often the benchmarks are measured.
    - Determine the categories of data you will be measuring in support of the ongoing development of the service line.
    - Create a spreadsheet that includes baseline data for each category and additional data that illustrates the trending over time for that category.
    - Be ready to explain why you chose these particular data sets and how you intend to use the data to improve outcomes.

Create a video recording:

- Analyze your data and present your conclusions and recommendations to administrators in a recorded video presentation.
    - Describe the outcomes you are supporting and the benchmarks related to that outcome.
    - Describe your data collection methods and rational.
    - Evaluate the data measures and data trending for the specific quality outcome related to the service line.
        - Share your interpretation of the data related to the benchmarks of the outcome.
        - Support your interpretation with any relevant outside sources.
        - Demonstrate to the administrators how you used the data in the spreadsheet to reach your conclusions.

Additional Requirements:

Video Recording:

- Your video recording should be between 3–7 minutes in length. You must appear in professional attire and with a professional demeanor, as if you are presenting to the administration of your organization.
- Kaltura is the preferred tool for creating your video. Any tools other than Kaltura should be cleared with your instructor prior to using.

Grading Criteria and Competency Alignment

The assignment instructions correspond to the grading criteria in the Video Presentation and Spreadsheet: Proposal to Administration scoring guide. You may also want to review the performance level descriptions for each criterion to see how your work will be assessed.

- Competency 1: Apply data management techniques to decision making in nursing practice.
    - Analyze the what, why, and how to measure for a specific quality outcome related to a service line in a practice setting or organization.
- Competency 2: Create various data representation methods for reporting and professional communications.
    - Evaluate data measures and data trending for a specific quality outcome related to a service line in a practice setting or organization.
- Competency 3: Articulate strategies for querying and generating reports from health information system databases.
    - Create a data spreadsheet that illustrates trending data for the service line.
- Competency 4: Communicate technical standards as they relate to various informatics technologies.
    - Develop a scholarly video presentation of the measures and data for the service line.

Submit both your recording link and the spreadsheet to this assignment.

Course Resources

Using Kaltura

u06d1 - Sharing Best Practices With Stakeholders

As leader in practice, you want to show your stakeholders evidence of best practice in your organization or practice setting. Where would you start related to data management and outcome assessment?

Response Guidelines

Review the posts of your fellow learners and respond according to the FEM guidelines. In your response, you must do one or a combination of the following:

- Ask an analytical question.
- Offer a suggestion.
- Elaborate on a particular point.
- Provide an alternative opinion supported with scholarly references.

Initial Discussion and Response Guidelines: Remember to adhere to the requirements for unit discussion postings and peer responses addressed in the School of Nursing and Health Sciences Faculty Expectations Message (FEM).

You must make reference to the work of another writer (either as a quotation, paraphrase, or summary) to provide support for your ideas. The source can be the course text, another relevant book, any assigned readings, or an article you find on your own through the Capella Library. When you incorporate the other writer's ideas in your work, use APA citation style to give credit to that writer. Remember that an APA citation includes both the in-text citation (the author's last name and the year of publication) and the full reference for the source.

Course Resources

Graduate Discussion Participation Scoring Guide

Unit 7 >> Bioinformatics

Introduction

Bioinformatics is part of everyday care delivery. Bioinformatics datasets are monitored and evaluated related to outcome management with disease and acute care that affect how patient care decisions are made in practice. It is essential that informaticists consider the ethical and legal ramifications when working with bioinformatics. Bioinformatics data management developed by informaticists affect critical patient care decision making.

Learning Activities

u07s1 - Studies

Readings

As you study the readings for this unit, consider what was complex about applying bioinformatics in an organization or practice setting.

- In the *Nursing Informatics and the Foundation of Knowledge* text:
  - Chapter 24, "Bioinformatics, Biomedical Informatics, and Computational Biology," pages 511–519.
- Kodra, Y., Weinbach, J., Posada-de-la-Paz, M., Coi, A., Lemonnier, S. L., van Enckevort, D., ... (2018). Recommendations for improving the quality of rare disease registries. *International Journal of Environmental Research and Public Health*, *15*(8), 1–22.
- Krempel, R., Kulkarni, P., Yim, A., Lang, U., Habermann, B., & Frommolt, P. (2018). Integrative analysis and machine learning on cancer genomics data using the Cancer Systems Biology Database (CancerSysDB). *BMC Bioinformatics*, *19*(1), 1–10.
- Regan, M., Engler, M. B., Coleman, B., Daack-Hirsch, S., & Calzone, K. A. (2019). Establishing the genomic knowledge matrix for nursing science. *Journal of Nursing Scholarship*, *51*(1), 50–57.
- Yang, J., Zhang, S., Zhang, J., Dong, J., Wu, J., Zhang, L., . . . Wu, F. (2018). Identification of key genes and pathways using bioinformatics analysis in septic shock children. *Infection and Drug Resistance*, *11*, 1163–1174.
- Zhang, K., Kong, X., Feng, G., Xiang, W., Chen, L., Yang, F., . . . Zhang, B. (2018). Investigation of hypoxia networks in ovarian cancer via bioinformatics analysis. *Journal of Ovarian Research*, *11*(1), 1–11.

u07d1 - Ethical and Legal Aspects of Biometrics

Discuss the importance of ethical and legal considerations when using bioinformatics in health care.

Response Guidelines

Review the posts of your fellow learners and respond according to the FEM guidelines. In your response, you must do one or a combination of the following:

- Ask an analytical question.
- Offer a suggestion.
- Elaborate on a particular point.
- Provide an alternative opinion supported with scholarly references.

Initial Discussion and Response Guidelines: Remember to adhere to the requirements for unit discussion postings and peer responses addressed in the School of Nursing and Health Sciences Faculty Expectations Message (FEM).

You must make reference to the work of another writer (either as a quotation, paraphrase, or summary) to provide support for your ideas. The source can be the course text, another relevant book, any assigned readings, or an article you find on your own through the Capella Library. When you incorporate the other writer's ideas in your work, use APA citation style to give credit to that writer. Remember that an APA citation includes both the in-text citation (the author's last name and the year of publication) and the full reference for the source.

Course Resources

Graduate Discussion Participation Scoring Guide

u07d2 - Biometrics Data: Challenges and Opportunities

After analyzing information on bioinformatics, describe one concern, one positive aspect, and one complexity of the use of bioinformatic data.

Response Guidelines

Review the posts of your fellow learners and respond according to the FEM guidelines. In your response, you must do one or a combination of the following:

- Ask an analytical question.
- Offer a suggestion.
- Elaborate on a particular point.
- Provide an alternative opinion supported with scholarly references.

Initial Discussion and Response Guidelines: Remember to adhere to the requirements for unit discussion postings and peer responses addressed in the School of Nursing and Health Sciences Faculty Expectations Message (FEM).

You must make reference to the work of another writer (either as a quotation, paraphrase, or summary) to provide support for your ideas. The source can be the course text, another relevant book, any assigned readings, or an article you find on your own through the Capella Library. When you incorporate the other writer's ideas in your work, use APA citation style to give credit to that writer. Remember that an APA citation includes both the in-text citation (the author's last name and the year of publication) and the full reference for the source.

Course Resources

Graduate Discussion Participation Scoring Guide

Introduction

Bioinformatics has many critical components to understand, monitor, and evaluate that affect patient care decision making. Given the importance of the plethora of decisions that come from use of bioinformatics there should be processes in place that help to regulate how bioinformatics is applied in organizations. These processes should include policies and guidelines to track the use of bioinformatics as applications in practice.

Learning Activities

u08s1 - Studies

Readings

As you think about the complexities of bioinformatics in these readings, what type of ramifications can you imagine might happen when organizations are not considering the legal and ethical concepts that surround the use of bioinformatics?

- In the *Nursing Informatics and the Foundation of Knowledge* text:
  - Chapters 25, "The Art of Caring in Technology-Laden Environments," on pages 524–535.
- David, H. B. F., & Belcy, S. A. (2018). Heart disease prediction using data mining techniques. *ICTACT Journal on Soft Computing*, *9*(1), 1817–1823.
- El aboudi, N., & Benhlima, L. (2018). Big data management for healthcare systems: Architecture, requirements, and implementation. *Advances in Bioinformatics*, *2018*, 1–10.
- Hoyle, P. (2019). Health information is central to changes in healthcare: A clinician's view. *Health Information Management Journal*, *48*(1), 48–51.

u08s2 - Assignment Preparation

Start preparing for your Unit 9 assignment, Tool Kit for Bioinformatics, by completing the following:

- Use the professional literature, the Internet, and any other resources you locate, to begin to assemble content for your tool kit for implementing bioinformatics in an organization.

View the Tool Kit for Bioinformatics assignment description and its scoring guide to ensure you understand the grading criteria for this assignment.

u08d1 - Applying Bioinformatics

For this discussion, describe an example of the application of bioinformatics for health care delivery.

Response Guidelines

Review the posts of your fellow learners and respond according to the FEM guidelines. In your response, you must do one or a combination of the following:

- Ask an analytical question.
- Offer a suggestion.
- Elaborate on a particular point.
- Provide an alternative opinion supported with scholarly references.

Initial Discussion and Response Guidelines: Remember to adhere to the requirements for unit discussion postings and peer responses addressed in the School of Nursing and Health Sciences Faculty Expectations Message (FEM).

You must make reference to the work of another writer (either as a quotation, paraphrase, or summary) to provide support for your ideas. The source can be the course text, another relevant book, any assigned readings, or an article you find on your own through the Capella Library. When you incorporate

the other writer's ideas in your work, use APA citation style to give credit to that writer. Remember that an APA citation includes both the in-text citation (the author's last name and the year of publication) and the full reference for the source.

Course Resources

Graduate Discussion Participation Scoring Guide

u08d2 - Policies and Guidelines

As you think about the application of bioinformatics, what types of policies and guidelines do you think an organization should have in place before they start to use bioinformatics in practice?

Response Guidelines

Review the posts of your fellow learners and respond according to the FEM guidelines. In your response, you must do one or a combination of the following:

- Ask an analytical question.
- Offer a suggestion.
- Elaborate on a particular point.
- Provide an alternative opinion supported with scholarly references.

Initial Discussion and Response Guidelines: Remember to adhere to the requirements for unit discussion postings and peer responses addressed in the School of Nursing and Health Sciences Faculty Expectations Message (FEM).

You must make reference to the work of another writer (either as a quotation, paraphrase, or summary) to provide support for your ideas. The source can be the course text, another relevant book, any assigned readings, or an article you find on your own through the Capella Library. When you incorporate the other writer's ideas in your work, use APA citation style to give credit to that writer. Remember that an APA citation includes both the in-text citation (the author's last name and the year of publication) and the full reference for the source.

Course Resources

Graduate Discussion Participation Scoring Guide

Unit 9 >> Responsibility and Accountability in Practice

Introduction

Helping organizations to assess, monitor, and use bioinformatics to enhance outcomes for patient care delivery takes the application of best practice. Best practice is developed with the use of policy, guidelines, and practical recommendations. Being competent with bioinformatics concepts is supported with organized, collaborative, and accountable care decision making. Organized, collaborative, and accountable care delivery should be incorporated into policy, guidelines, and practical recommendations for bioinformatics.

Learning Activities

u09s1 - Studies

Readings

Organizations will need continued guidance as bioinformatics continues to be applied in practice; so, for these readings, focus on the structures that can be implemented to help provide support to use bioinformatics in practice.

- Favaretto, M., de Clercq, E., & Elger, B. S. (2019). Big data and discrimination: Perils, promises and solutions. A systematic review. *Journal of Big Data*, *6*(1), 1–27.
- Gurgen Erdogan, T., & Tarhan, A. (2018). A goal-driven evaluation method based on process mining for healthcare processes. *Applied Sciences*, *8*(6), 1–22.
- Ienca, M., Ferretti, A., Hurst, S., Puhan, M., Lovis, C., & Vayena, E. (2018). Considerations for ethics review of big data health research: A scoping review. *PloS One*, *13*(10), 1–15.
- Seyhan, A. A., & Carini, C. (2019). Are innovation and new technologies in precision medicine paving a new era in patients centric care? *Journal of Translational Medicine*, *17*(1), 1–28.
- Shepheard, J. (2019). Ethical leadership and why health information management professionals need to be involved. Commentary on *Health Information Is Central to Changes in Healthcare*: *A Clinician's View* (Hoyle, 2019). *Health Information Management Journal*, *48*(1), 52–55.

u09a1 - Tool Kit for Bioinformatics

For this assignment, you will create a tool kit for the implementation of bioinformatics in an organization or practice setting and provide a one page executive summary describing a specific instance of how bioinformatics might be implemented under the tool kit policies and guidelines.

Instructions

Tool Kit

Use the professional literature, the Internet, and any other resources you locate, to assemble a tool kit for implementing bioinformatics in an organization. Your tool kit should include:

- An evidence-based policy that explains what is to be done and why.
- Guidelines detailing how to apply the policy in practice.
- Practical recommendations to assist in implementing the use of bioinformatics.
    - How to how educate stakeholders on this new practice.
    - When to monitor data to evaluate outcomes on the use of the policy.
- An in-depth look at a specific example of bioinformatics, demonstrating how the policy, guidelines, and recommendations will result in quality outcomes with care delivery.
    - Include data in the form of actual data tables to demonstrate the responsible and accountable use of data in practice.

Support your policy, guidelines, and recommendations with references that speak to the legal and ethical ramifications of data use in bioinformatics and the implications for responsible and accountable use of data in practice.

Executive Summary

Using a specific example, write a one-page executive summary for administration to explain how the policy, guidelines, and recommendations will govern the use of bioinformatics in the organization or practice setting.

Additional Requirements

- **Tool Kit:**
    - **Length:** 3–5 pages.
    - **Font and font size**: Times New Roman, 12 point.
    - **Reference:** 5–7 scholarly sources. Additional references may be used.
    - **Written communication:** Written communication is free of errors that detract from the overall message.
    - **APA formatting:** Format your tool kit using current APA style. Be sure to include the following:
        - Appropriate section headings.
        - A running head on all pages.
        - A title page and references page.
- **Executive Summary:**
    - **Length of Executive Summary**: 250 words.

Submit your tool kit and executive summary to the assignment area for grading.

Grading Criteria and Competency Alignment

The assignment instructions correspond to the grading criteria in the Tool Kit for Bioinformatics scoring guide. You may also want to review the performance level descriptions for each criterion to see how your work will be assessed.

- Competency 1: Apply data management techniques to decision making in nursing practice.
  - Evaluate evidenced-based policy, guidelines, and practical recommendations for the implementation of bioinformatics in an organization or practice setting.
  - Apply a specific example of an implementation of bioinformatics to inform and plan for quality outcomes with care delivery.
- Competency 3: Articulate strategies for querying and generating reports from health information system databases.
  - Analyze the legal and ethical ramification of using bioinformatics in practice.
  - Incorporate responsible and accountable use of data with bioinformatics.
- Competency 6: Communicate as a practitioner-scholar, consistent with the expectations of a nursing professional.
  - Compose an executive summary that is professionally written and explains the policy, guidelines, and implementation recommendations in the context of a specific organizational example.

u09d1 - Responsible and Accountable Use

How would you define responsible and accountable use of bioinformatics to guide and support enhanced health care delivery?

Response Guidelines

Review the posts of your fellow learners and respond according to the FEM guidelines. In your response, you must do one or a combination of the following:

- Ask an analytical question.
- Offer a suggestion.
- Elaborate on a particular point.
- Provide an alternative opinion supported with scholarly references.

Initial Discussion and Response Guidelines: Remember to adhere to the requirements for unit discussion postings and peer responses addressed in the School of Nursing and Health Sciences Faculty Expectations Message (FEM).

You must make reference to the work of another writer (either as a quotation, paraphrase, or summary) to provide support for your ideas. The source can be the course text, another relevant book, any assigned readings, or an article you find on your own through the Capella Library. When you incorporate the other writer's ideas in your work, use APA citation style to give credit to that writer. Remember that an APA citation includes both the in-text citation (the author's last name and the year of publication) and the full reference for the source.

Course Resources

Graduate Discussion Participation Scoring Guide

Unit 10 >> Informatic Analytics and the Future

Introduction

Envisioning the future can help us prepare for the potential implications of data use to enhance practice. Being cognizant of the many applications and ramifications for data use are important considerations to contemplate for the future of informatics and care delivery. Think about what has transpired over the last decade with technology, data analytics, and applications in practice. Now think about what the future might hold for data use, knowledge development, and enhanced care delivery.

Learning Activities

u10s1 - Studies

Readings

- Jungwirth, D., & Haluza, D. (2019). Information and communication technology and the future of healthcare: Results of a multi-scenario Delphi survey. *Health Informatics Journal*, *25*(1), 161–173.
- Mackey, T. K., Kuo, T., Gummadi, B., Clauson, K. A., Church, G., Grishin, D., . . . Palombini, M. (2019). 'Fit-for-purpose?' – Challenges and opportunities for applications of blockchain technology in the future of healthcare. *BMC Medicine*, *17*(1), 1–17.
- Muangsrinoon, S., & Boonbrahm, P. (2019). Game elements from literature review of gamification in healthcare context. *Journal of Technology and Science Education*, *9*(1), 20–31.
- Wang, J., Gephart, S. M., Mallow, J., & Bakken, S. (2019). Models of collaboration and dissemination for nursing informatics innovations in the 21st century. *Nursing Outlook, 67*(4), 419–432.

u10d1 - The Future of Informatics

As you contemplate the future of informatics and changes over the next decade with the use of health care analytics in our world, what comes to mind to improve health care outcomes?

Response Guidelines

Review the posts of your fellow learners and respond according to the FEM guidelines. In your response, you must do one or a combination of the following:

- Ask an analytical question.
- Offer a suggestion.
- Elaborate on a particular point.
- Provide an alternative opinion supported with scholarly references.

Initial Discussion and Response Guidelines: Remember to adhere to the requirements for unit discussion postings and peer responses addressed in the School of Nursing and Health Sciences Faculty Expectations Message (FEM).

You must make reference to the work of another writer (either as a quotation, paraphrase, or summary) to provide support for your ideas. The source can be the course text, another relevant book, any assigned readings, or an article you find on your own through the Capella Library. When you incorporate the other writer's ideas in your work, use APA citation style to give credit to that writer. Remember that an APA citation includes both the in-text citation (the author's last name and the year of publication) and the full reference for the source.

Course Resources

Graduate Discussion Participation Scoring Guide

u10d2 - Provide Feedback on This Course

What would you like to see changed, added, or enhanced in this course?

Response Guidelines

Read the posts of your peers and add your insight and questions to their feedback.

Course Resources

Graduate Discussion Participation Scoring Guide