Credit Hours: 3

Contact Hours: This is a 3-credit course, offered in accelerated format. This means that 16 weeks of material is covered in 8 weeks. The exact number of hours per week that you can expect to spend on each course will vary based upon the weekly coursework, as well as your study style and preferences. You should plan to spend 14-20 hours per week in each course reading material, interacting on the discussion boards, writing papers, completing projects, and doing research.

Faculty Information: Faculty contact information and office hours can be found on the faculty profile page.

COURSE DESCRIPTION AND OUTCOMES

Course Description:

This course explores the strategies to gather patient information and new forms of data to be used to measure healthcare delivery, improve patient outcomes, and provide a foundation for public health surveillance. 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.

Course Overview:

This course explores the use of health information in the context of population health informatics. The goal is to understand data gathering that results in knowledge that results in an exchange of data that supports population health surveillance through statistical and visual analytics. The course also examines ways to leverage technology through mobile and telehealth applications. The issues of privacy, security, and the ethical handling of data will be emphasized as well as the importance of protecting the patient and their information.

Course Learning Outcomes:

1. Review contemporary information science theories and methods toward the generation, management, and sharing of biomedical data.
2. Assess the approaches in which data, information, and knowledge are generated and used to address population health needs across diverse settings, from individual patients to universal public health issues.
3. Define, discuss, and resolve key issues in healthcare informatics. Implement, adapt, and validate existing informatics concepts and approaches as they relate to specific population health requirements.

PARTICIPATION & ATTENDANCE

Prompt and consistent attendance in your online courses is essential for your success at CSU-Global Campus. Failure to verify your attendance within the first seven days of this course may result in your withdrawal. If for some reason you would like to drop a course, please contact your advisor.

Online classes have deadlines, assignments, and participation requirements just like on-campus classes. Budget your time carefully, and keep an open line of communication with your instructor. If you are having technical problems, problems with your assignments, or other problems that are impeding your progress, let your instructor know as soon as possible.

COURSE MATERIALS

Required:

Joshi, A., Thorpe, L., & Waldron, L. (2019). *Population Health Informatics: Driving Evidence-Based Solutions into Practice*. Jones & Bartlett Learning Burlington, MA. ISBN-13: 9781284103960

NOTE: All non-textbook required readings and materials necessary to complete assignments, discussions, and/or supplemental or required exercises are provided within the course itself. Please read through each course module carefully.

COURSE SCHEDULE

Due Dates

The Academic Week at CSU-Global begins on Monday and ends the following Sunday.

- **Discussion Boards:** The original post must be completed by Thursday at 11:59 p.m. MT and Peer Responses posted by Sunday 11:59 p.m. MT. Late posts may not be awarded points.
- **Critical Thinking:** Assignments are due Sunday at 11:59 p.m. MT.

WEEKLY READING AND ASSIGNMENT DETAILS

Module 1

Readings

- Chapters 1 & 2 in *Population Health Informatics.*
- Cervone, H. F. (2016). Perspectives on informatics in the health sciences for information professionals. *Digital Library Perspectives, 32*(4), 226-231.
- Poprish, S., Tate, C., & Whitehead, S., PhD. (2017). Part 1: Informatics-data use made easy. *Journal of Environmental Health, 80*(5), 56-57.

Discussion (25 points)

Critical Thinking: (75 points)

Option #1: Application of Emerging Technologies

Create a PowerPoint presentation analyzing the application of emerging technologies to population health informatics. Keep bullet points to three to five words and put your discussion in the speaker notes explaining your findings.

Your presentation should be seven to ten slides in length (excluding title slide and references) and formatted according to the *CSU-Global Guide to Writing and APA Requirements*. Be sure to discuss and reference concepts taken from the assigned textbook reading and relevant research. **You must include detailed, thorough speaker notes for each content slide in your submission.** You must include a minimum of three credible, academic or professional references beyond the text or other course materials. Review the grading rubric to see how you will be graded for this assignment.

Create a PowerPoint presentation analyzing the challenges in using healthcare technologies in applying them to population health informatics. Keep bullet points to three to five words and put your discussion in the speaker notes explaining your findings.

Your presentation should be seven to ten slides (excluding title slide and references) and formatted according to the *CSU-Global Guide to Writing and APA Requirements*. Be sure to discuss and reference concepts taken from the assigned textbook reading and relevant research. **You must include detailed, thorough speaker notes for each content slide in your submission.** You must include a minimum of three credible, academic or professional references beyond the text or other course materials. Review the grading rubric to see how you will be graded for this assignment.

Option #2: Challenges of Healthcare Technologies

Create a PowerPoint presentation analyzing the challenges in using healthcare technologies in applying them to population health informatics. Keep bullet points to three to five words and put your discussion in the speaker notes explaining your findings.

Your presentation should be seven to ten slides (excluding title slide and references) and formatted according to the *CSU-Global Guide to Writing and APA Requirements*. Be sure to discuss and reference concepts taken from the assigned textbook reading and relevant research. **You must include detailed, thorough speaker notes for each content slide in your submission.** You must include a minimum of three credible, academic or professional references beyond the text or other course materials. Review the grading rubric to see how you will be graded for this assignment.

Module 2

Readings

- Chapters 3 & 4 in *Population Health Informatics.*
- Barr-Walker, J. (2017). Evidence-based information needs of public health workers: A systematized review. *Journal of the Medical Library Association, 105*(1), 69-79. doi:10.5195/jmla.2017.109
- Parker, C., Reeves, M., Weiner, M., & Adler-Milstein, J. (2017). Health information exchange organizations and their support for research: Current state and future outlook. *Inquiry - Excellus Health Plan, 54.*

Discussion (25 points)

Critical Thinking: (75 points)

Option #1: HIPPA Security Safeguards

Define and discuss the HIPAA Security Safeguards that are required to secure patient health information housed in an electronic health record (EHR) or another database. Discuss the importance of these safeguards as related to the sharing of patient information in a health information exchange and identify the challenges Health Information Exchanges (HIE) face.

HHS (2017). HIPAA Security Requirements. Retrieved from http://www.hipaasurvivalguide.com/hipaa-security-requirements.php

Your paper should be three to four pages in length (excluding cover page and references) and formatted according to the *CSU-Global Guide to Writing and APA Requirements*. Be sure to discuss and reference concepts taken from the assigned textbook reading and relevant research. You must include a minimum of three credible, academic or professional references beyond the text or other course materials. Review the grading rubric to see how you will be graded for this assignment. Utilize headings to organize the content in your work.

Option #2: HIPAA Security Checklist

Define and discuss the administrative, physical, and technical safeguards from the HIPAA Security Checklist, which describes methods to secure patient health information housed in an electronic health record (EHR) or another database. Discuss the importance of these safeguards as related to the sharing of patient information in a health information exchange and identify the challenges Health Information Exchanges (HIE) face.

Healthit.gov (2017). HIPAA Security Checklist for Healthcare. https://www.healthit.gov/sites/default/files/comments_upload/hipaa-security-checklist.pdf

Your paper should be three to four pages in length (excluding cover page and references) and formatted according to the *CSU-Global Guide to Writing and APA Requirements*. Be sure to discuss and reference concepts taken from the assigned textbook reading and relevant research. You must include a minimum of three credible, academic or professional references beyond the text or other course materials. Review the grading rubric to see how you will be graded for this assignment. Utilize headings to organize the content in your work.

Portfolio Project Milestone (25 points)

Milestone Option #1: **Portfolio Topic (Written)**

Submit your Portfolio Topic to your instructor for preliminary approval. Provide reasons for your choice. Your submission should contain no more than one page of content, framed by a cover page and references page, and include key points you wish to include in your final project. This assignment is required and is worth 25 points.

Format your text and references according to the *CSU-Global Guide to Writing and APA Requirements*. A cover page is required.

Milestone Option #2: Portfolio Topic (PowerPoint)

Submit your Portfolio Topic to your instructor for preliminary approval. Provide reasons for your choice. For this option, your submission should be in the form of a PowerPoint presentation. Since this is a PowerPoint, you must include a title slide, slides containing the body of the paper, references to support your ideas, and detailed speaker notes to highlight key points you wish to include in your final project. This assignment is required and is worth 25 points.

Format your text and references according to the *CSU-Global Guide to Writing and APA Requirements*. A cover/title slide is required.

Module 3

Readings

·   Chapters 5 & 6 in *Population Health Informatics.*
·   Gruebner, O., Lowe, S. R., Sykora, M., Shankardass, K., Subramanian, S. V., & Galea, S. (2017). A novel surveillance approach for disaster mental health. *Plos ONE*, *12*(7), 1-15.
·   Zheng, H., Woodall, W. H., Carlson, A. L., & DeLisle, S. (2018). Can long-term historical data from electronic medical records improve surveillance for epidemics of acute respiratory infections? A systematic evaluation. *Plos ONE*, *13*(1), 1-14. doi:10.1371/journal.pone.0191324

Discussion (25 points)

Critical Thinking: (75 points)

Option #1: Value of Emerging Mobile Technologies

Find a study in the CSU-Global library that explores the value of emerging mobile technologies in healthcare management. Explain how these technologies support the achievement of meaningful use and patient engagement. Recommend how emergent technologies can support population health outcomes.

Your paper should be three to four pages in length (excluding cover page and references) and formatted according to the *CSU-Global Guide to Writing and APA Requirements*. Be sure to discuss and reference concepts taken from the assigned textbook reading and relevant research. You must include a minimum of three credible, academic or professional references beyond the text or other course materials. Review the grading rubric to see how you will be graded for this assignment. Utilize headings to organize the content in your work.

Option #2: Experiential Learning Opportunity

Go to your local public health department or hospital and discover what the organization does as a community service to support community health. Note whether these programs are free or if there is a charge, what diseases have been identified where there is a need for educational materials, and if there is support for the patient coping with his or her disease management. Write up your findings and any recommendations that you have.

Your paper should be three to four pages in length (excluding cover page and references) and formatted according to the *CSU-Global Guide to Writing and APA Requirements*. Be sure to discuss and reference concepts taken from the assigned textbook reading and relevant research. You must include a minimum of three credible,

academic or professional references beyond the text or other course materials. Review the grading rubric to see how you will be graded for this assignment. Utilize headings to organize the content in your work.

Module 4

Readings

· Chapter 7 in *Population Health Informatics.*
· Chen, M., Ma, Y., Song, J., Lai, C., & Hu, B. (2016). Smart clothing: Connecting human with clouds and big data for sustainable health monitoring. *Mobile Networks and Applications, 21*(5), 825-845.

Discussion (25 points)

Critical Thinking: (75 points)

Option #1: Cloud Computing to Telemedicine and Population Health Surveillance

After reading *"Case Study: IBM Watson Analytics Cloud Platform as Analytics-as-a-Service System for Heart Failure Early Detection"* (link below), prepare a PowerPoint presentation that examines the application of cloud computing to telemedicine and population health surveillance. Discuss the challenges and opportunities that cloud computing and analysis provide. Make recommendations to future application of this type of study.

Guidi, G., Miniati, R., Mazzola, M., & Iadanza, E. (2016). Case study: IBM Watson analytics cloud platform as analytics-as-a-service system for heart failure early detection. *Future Internet, 8*(3), 32.

Your presentation should be seven to ten slides (excluding title slide and references) and formatted according to the *CSU-Global Guide to Writing and APA Requirements*. Be sure to discuss and reference concepts taken from the assigned textbook reading and relevant research. **You must include detailed, thorough speaker notes for each content slide in your submission.** You must include a minimum of three credible, academic or professional references beyond the text or other course materials. Review the grading rubric to see how you will be graded for this assignment.

Option #2: Data Analytics in Predicting Disease

After reading *"Predictive big data analytics: A study of Parkinson's Disease using large, complex, heterogeneous, incongruent, multi-source and incomplete observations"* (link below), prepare a PowerPoint presentation that examines the application of data analytics in predicting disease. Discuss the challenges and opportunities that big data analysis provides. Make recommendations to future application of this type of study.

Dinov, I. D., Heavner, B., Tang, M., Glusman, G., Chard, K., Darcy, M., & ... Toga, A. W. (2016). Predictive big data analytics: A study of Parkinson's Disease using large, complex, heterogeneous, incongruent, multi-source and incomplete observations. *Plos ONE*, *11*(8), 1-28. doi:10.1371/journal.pone.0157077

Your presentation should be seven to ten slides (excluding title slide and references) and formatted according to the *CSU-Global Guide to Writing and APA Requirements*. Be sure to discuss and reference concepts taken from the assigned textbook reading and relevant research. **You must include detailed, thorough speaker notes for each content slide in your submission.** You must include a minimum of three credible, academic or professional references beyond the text or other course materials. Review the grading rubric to see how you will be graded for this assignment.

Portfolio Project Milestone (25 points)

Milestone Option #1: **Portfolio Written Outline**

Submit a **written outline** of your Portfolio Project.

- State your paper topic.
- Provide a **written outline** of your paper.
    - Your outline should include headers (the major topics), major resources, and the intended flow of the information in the project.
    - Under each header, write a few sentences describing what you think you might cover in that section.
- Provide three articles that you might consider using for your final Portfolio Project. These sources cannot include the textbook or other course materials.
- Briefly state why you feel each source would be pertinent to your project. This is not expected to be a final list. The goal here is to motivate you to begin examining research that might help you in your final Portfolio Project.

Milestone Option #2: Portfolio Concept Map

Submit a **concept map** of your Portfolio Project that visualizes the paper topic and the impact that each of the project's components and subtopics have toward success.

- State your paper topic.
- Provide a **concept map** for your paper.
    - Your concept map should include headers (the major topics), major resources, and the intended flow of the information in the project.
    - For each major topic listed, include a few sentences describing what you think you might cover in that section. If you'd like to keep your concept map's appearance clean, you may submit the topic descriptions in a separate document.
- Provide three articles that you might consider using for your final Portfolio Project. These sources cannot include the textbook or other course materials.
- Briefly state why you feel each source would be pertinent to your project. This is not expected to be a final list. The goal here is to motivate you to begin examining research that might help you in your final Portfolio Project. Again, the rationale for resources can be submitted in a separate document, if preferred.

Module 5

Readings

- Chapters 8 & 11 in *Population Health Informatics.*
- Hark, L. A., Katz, L. J., Myers, J. S., Waisbourd, M., Johnson, D., Pizzi, L. T., . . . Haller, J. A. (2017). Philadelphia telemedicine glaucoma detection and follow-up study: Methods and screening results. *American Journal of Ophthalmology, 181*, 114-124.
- Tuckson, R. V., M.D., Edmunds, M., PhD., & Hodgkins, Michael L, M.D., M.P.H. (2017). Telehealth. *The New England Journal of Medicine, 377*(16), 1585-1592.

Discussion (25 points)

Critical Thinking: (75 points)

Option #1: Gamification as a User Engagement Tool
After reading "*Designing evaluation plans for health promotion mHealth interventions: A case study of the Milk Man mobile app*" (link below), discuss the use of gamification as a user engagement tool to

bring about the collaboration of stakeholder in patient care. Provide your recommendations on how this or similar mobile apps could support population health.

White, B. K., Burns, S. K., Giglia, R. C., & Scott, J. A. (2016). Designing evaluation plans for health promotion mHealth interventions: A case study of the *Milk Man* mobile app. *Health Promotion Journal of Australia, 27*(3), 198-203.

Your paper should be three to four pages in length (excluding cover page and references) and formatted according to the *CSU-Global Guide to Writing and APA Requirements*. Be sure to discuss and reference concepts taken from the assigned textbook reading and relevant research. You must include a minimum of three credible, academic or professional references beyond the text or other course materials. Review the grading rubric to see how you will be graded for this assignment. Utilize headings to organize the content in your work.

Option #2: The Lifecourse Approach as a User Engagement Tool

After reading *"A call to action and a lifecourse strategy to address the global burden of raised blood pressure on current and future generations"* (link below), discuss the use of the lifecourse approach as a user engagement tool to bring about the collaboration of stakeholder in patient care. Provide your recommendations on how this or similar mobile apps could support population health.

Olsen, M. H., Angell, S. Y., Asma, S., Boutouyrie, P., Burger, D., Chirinos, J. A., . . . Wang, J. G. (2016). A call to action and a lifecourse strategy to address the global burden of raised blood pressure on current and future generations: The lancet commission on hypertension. *The Lancet, 388*(10060), 2665-2712.

Your paper should be three to four pages in length (excluding cover page and references) and formatted according to the *CSU-Global Guide to Writing and APA Requirements*. Be sure to discuss and reference concepts taken from the assigned textbook reading and relevant research. You must include a minimum of three credible, academic or professional references beyond the text or other course materials. Review the grading rubric to see how you will be graded for this assignment. Utilize headings to organize the content in your work.

Module 6

Readings

- Chapters 9 & 10 in *Population Health Informatics.*
- Brazionis, L., Jenkins, A., Keech, A., Ryan, C., Bursell, S., & TEAMSnet Study, G. (2017). An evaluation of the telehealth facilitation of diabetes and cardiovascular care in remote Australian Indigenous communities: - protocol for the telehealth eye and associated medical services network [TEAMSnet] project, a pre-post study design. *BMC Health Services Research*, *17,* 1-12. doi:10.1186/s12913-016-1967-4
- Kampmeijer, R., Pavlova, M., Tambor, M., Golinowska, S., & Groot, W. (2016). The use of e-health and m-health tools in health promotion and primary prevention among older adults: a systematic literature review. *BMC Health Services Research*, *16,* 467-479. doi:10.1186/s12913-016-1522-3

Discussion (25 points)

Critical Thinking: (75 points)

Option #1: HITECH programs for Health Information Exchange and Patient Information Sharing

Prepare a PowerPoint presentation that examines the HITECH programs for health information exchange and patient information sharing. Describe how this exchange of patient information will satisfy the objectives of meaningful use and improve population health surveillance. Recommend the foundations that the healthcare organizations must have in place to participate in these national goals.

Your presentation should be seven to ten slides (excluding title slide and references) and formatted according to the *CSU-Global Guide to Writing and APA Requirements*. Be sure to discuss and reference concepts taken from the assigned textbook reading and relevant research. **You must include detailed, thorough speaker notes for each content slide in your submission.** You must include a minimum of three credible, academic or professional references beyond the text or other course materials. Review the grading rubric to see how you will be graded for this assignment.

Option #2: Global Telehealth

Prepare a PowerPoint presentation that examines Telehealth as it is used globally. Describe the drivers of telemedicine and telehealth and how the mechanisms of telehealth are delivered to patients and providers. Describe the benefits and challenges of this type of healthcare delivery. Explain the advantages and disadvantages of telemedicine and telehealth. Make recommendations that would help in the decision making of adopting this type of technology.

Your presentation should be seven to ten slides (excluding title slide and references) and formatted according to the *CSU-Global Guide to Writing and APA Requirements*. Be sure to discuss and reference concepts taken from the assigned textbook reading and relevant research. **You must include detailed, thorough speaker notes for each content slide in your submission.** You must include a minimum of three credible, academic or professional references beyond the text or other course materials. Review the grading rubric to see how you will be graded for this assignment.

Module 7

Readings

· Chapter 13 in *Population Health Informatics*.
· Campbell, J. I., Eyal, N., Musiimenta, A., & Haberer, J. E. (2016). Ethical questions in medical electronic adherence monitoring. *Journal of General Internal Medicine, 31*(3), 338-342.
· Klingler, C., Silva, D. S., Schuermann, C., Reis, A. A., Saxena, A., & Strech, D. (2017). Ethical issues in public health surveillance: A systematic qualitative review. *BMC Public Health*, *17,* 1-13. doi:10.1186/s12889-017-4200-4

Discussion (25 points)

Module 8

Readings

· Chapters 12 & 14 in *Population Health Informatics.*

- Lee, C., Lee, K., & Lee, D. (2017). Mobile healthcare applications and gamification for sustained health maintenance. *Sustainability, 9*(5), 772.
- Riso, B., Tupasela, A., Vears, D. F., Felzmann, H., Cockbain, J., Loi, M., . . . Rakic, V. (2017). Ethical sharing of health data in online platforms – which values should be considered? *Life Sciences, Society, and Policy, 13*(1), 1-27.

Discussion (25 points)

Portfolio Project (300 points)

Portfolio Project Option #1: Emerging Trends (Written)
Select one of the emerging trends in population health. The trends can be focused on technology, bio surveillance, disease prevalence, or another trend approved by your instructor. This will give you an opportunity to do research in an area of your specific interest.

In your final paper, include the following topics/headers:

- Introduction
- Current Research
- Benefits (based on current research findings)
- Challenges (gaps in research, additional research needed, opportunities, etc.)
- The Future
- Recommendations
- Conclusion.

Your paper should be eight to ten pages in length (excluding cover page and references) and formatted according to the *CSU-Global Guide to Writing and APA Requirements*. Be sure to discuss and reference concepts taken from the assigned textbook reading and relevant research. You must include a minimum of six credible, academic or professional references beyond the text or other course materials. Review the grading rubric to see how you will be graded for this assignment.

Portfolio Project Option #2: Portfolio Topic (PowerPoint)
Select one of the emerging trends in population health. The trends can be focused on technology, bio surveillance, disease prevalence, or another trend approved by your instructor. This will give you an opportunity to do research in an area of your specific interest.

In your final presentation, include the following topics/slides:

- Introduction
- Current Research
- Benefits (based on current research findings)
- Challenges (gaps in research, additional research needed, opportunities, etc.)
- The Future
- Recommendations
- Conclusion.

Your PowerPoint presentation should be 15-20 slides in length (excluding title slide and references) and formatted according to the *CSU-Global Guide to Writing and APA Requirements*. Be sure to discuss and reference concepts taken from the assigned textbook reading and relevant research. **You must include detailed, thorough speaker notes for each content slide in your submission.** You must include a minimum of six credible, academic or professional references beyond the text or other course materials. Review the grading rubric to see how you will be graded for this assignment.

COURSE POLICIES

Grading Scale	
A	95.0 – 100
A-	90.0 – 94.9
B+	86.7 – 89.9
B	83.3 – 86.6
B-	80.0 – 83.2
C+	75.0 – 79.9
C	70.0 – 74.9
D	60.0 – 69.9
F	59.9 or below

Course Grading

20% Discussion Participation
45% Critical Thinking Assignments
35% Portfolio Project & Milestones

In-Classroom Policies

For information on late work and incomplete grade policies, please refer to our **In-Classroom Student Policies and Guidelines** or the Academic Catalog for comprehensive documentation of CSU-Global institutional policies.

Academic Integrity
Students must assume responsibility for maintaining honesty in all work submitted for credit and in any other work designated by the instructor of the course. Academic dishonesty includes cheating, fabrication, facilitating academic dishonesty, plagiarism, reusing /re-purposing your own work (see *CSU-Global Guide to Writing and APA Requirements* for percentage of repurposed work that can be used in an assignment), unauthorized possession of academic materials, and unauthorized collaboration. The CSU-Global Library provides information on how students can avoid plagiarism by understanding what it is and how to use the Library and Internet resources.

Citing Sources with APA Style
All students are expected to follow the *CSU-Global Guide to Writing and APA Requirements* when citing in APA (based on the *APA Style Manual*, 6th edition) for all assignments. For details on CSU-Global APA style, please review the APA resources within the CSU-Global Library under the "APA Guide & Resources" link. A link to this document should also be provided within most assignment descriptions in your course.

Disability Services Statement
CSU–Global is committed to providing reasonable accommodations for all persons with disabilities. Any student with a documented disability requesting academic accommodations should contact the Disability Resource Coordinator at 720-279-0650 and/or email ada@CSUGlobal.edu for additional information to coordinate reasonable accommodations for students with documented disabilities.

Netiquette
Respect the diversity of opinions among the instructor and classmates and engage with them in a courteous, respectful, and professional manner. All posts and classroom communication must be conducted in accordance with the student code of conduct. Think before you push the Send button. Did you say just what you meant? How will the person on the other end read the words?

Maintain an environment free of harassment, stalking, threats, abuse, insults or humiliation toward the instructor and classmates. This includes, but is not limited to, demeaning written or oral comments of an ethnic, religious, age, disability, sexist (or sexual orientation), or racist nature; and the unwanted sexual advances or intimidations by email or on discussion boards and other postings within or connected to the online classroom. If you have concerns about something that has been said, please let your instructor know.