

## HIM 430-Health Data Management and Analytics

### Course & Title:

HIM 430-Health Data Management and Analytics

### Instructor:

Darnez Pope, MSHI, RHIA

[Darnez.pope@wku.edu](mailto:Darnez.pope@wku.edu)

270-745-6561

Academic Complex, Office 127A

### Contact Information:

The *best way* to contact me is either through email at [darnez.pope@wku.edu](mailto:darnez.pope@wku.edu) or during my posted office hours. My virtual office hours are flexible. My onsite office hours will vary. Office hours are posted under "Instructor Information" on Blackboard. If contacting me by email, I will make every effort to respond within 24 hours during the week and 48 hours during the weekend.

### Credit Hours:

Three semester hours

### Prerequisites:

HIM 230, PH 383, HCA 340

### Course Description:

Applies principles and methods of scientific research to selected topics in Health Informatics and relevant healthcare issues.

### Required Textbook:

White, Susan. Calculating and Reporting Healthcare Statistics, American Health Information Management Association, 2020, 6th Edition. Paperback ISBN: 9781584266839. e-book ISBN: 9781584267348.

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### Additional Course Resources:

- AHIMA Body of Knowledge (BoK)
- Perspectives in Health Information Management
- U.S. Department of Health and Human Services Website
- WKU Library Resources for Health Information:
  - Academic Search Complete (EBSCOhost)
  - CINAHL Full Text (EBSCOhost)
  - ICD-10
  - Joint Commission E-dition
  - One Search (Primo)
  - PubMed (NIH, Open Access)
- Other reviews, as assigned

### Course Communication Tools:

- Email (Use the following format when emailing the instructor---Subject: HIM430-Your Name-Topic)
- Phone
- Zoom

The following grading system will be used to determine final grades:

Chapter Quizzes (Quiz Points)	50%
Final Comprehensive Exam (Exam Points)	50%

100% - 90%	A
89% - 80%	B
79% - 70%	C
69% - 60%	D
59% - 50%	F

### Attendance Policy:

Course is online. There will be some mandatory and non-mandatory virtual meetings.

### Due Dates:

Students will receive grades of "0" for any assignment, exam, quiz, or test that is not submitted by the scheduled due date.

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### Title IX Misconduct/Assault Statement:

Western Kentucky University (WKU) is committed to supporting faculty, staff and students by upholding WKU's Title IX Sexual Misconduct/Assault Policy (#0.2070) at

<https://wku.edu/eoo/documents/titleix/wkutitleixpolicyandgrievanceprocedure.pdf> and

Discrimination and Harassment Policy (#0.2040) at

[https://wku.edu/policies/hr\\_policies/2040\\_discrimination\\_harassment\\_policy.pdf](https://wku.edu/policies/hr_policies/2040_discrimination_harassment_policy.pdf).

Under these policies, discrimination, harassment and/or sexual misconduct based on sex/gender are prohibited. If you experience an incident of sex/gender-based discrimination, harassment and/or sexual misconduct, you are encouraged to report it to the Title IX Coordinator, Andrea Anderson, 270-745-5398 or Title IX Investigators, Michael Crowe, 270-745-5429 or Joshua Hayes, 270-745-5121.

Please note that while you may report an incident of sex/gender based discrimination, harassment and/or sexual misconduct to a faculty member, WKU faculty are "Responsible Employees" of the

University and **MUST** report what you share to WKU's Title IX Coordinator or Title IX Investigator. If you would like to speak with someone who may be able to afford you confidentiality, you may contact WKU's Counseling and Testing Center at 270-745-3159.

### ADA Accommodation Statement:

In compliance with University policy, students with disabilities who require academic and/or auxiliary accommodations for this course must contact the Student Accessibility Resource Center located in Downing Student Union, 1074. SARC can be reached by phone number at 270-745-5004 [270-745-3030 TTY] or via email at [sarc.connect@wku.edu](mailto:sarc.connect@wku.edu). Please do not request accommodations directly from the professor or instructor without a faculty notification letter (FNL) from The Student Accessibility Resource Center.

### Regular and Substantive Interaction in Online and Distance Learning:

The U.S. Department of Education requires that distance education courses must include regular and substantive interaction between students and faculty. For more information about Regular and Substantive Interaction at WKU, please visit the [Regular and Substantive Interaction in Online and Distance Learning webpage](#).

In this course, regular and substantive interaction will take place in the following ways:

- Direct instruction with students on coursework
- Provide timely and detailed response to questions throughout the semester regarding course content or competencies
- Course announcements on Blackboard and via email
- Accessible via email, text, phone, and scheduled Zoom meetings
- Assignments and assessment deadlines are set throughout the semester (for more information, see class schedule below)

**HIM 430-Health Data Management and Analytics**

**2018 CAHIIM HIM Baccalaureate Degree Curriculum Requirements**

Taxonomy	2018 CAHIIM Curricula Competencies	Guidance	Assignments
<b>Domain III. Informatics, Analytics, and Data Use</b>			
5	III.3. Interpret statistics for health services.	Statistical Data Analysis	Chapter 3 to 10 Reviews/Tests
4	III.4. Examine health care findings with data visualizations.	Data Tools and Standards, Data Interpretation and Presentation	Chapter 11 Review/Test

**Syllabus Changes:**

Course and exam schedule are subject to change.

**Course Content**

- I. Patient Census
  - A. Inpatient Census
  - B. Calculation of Inpatient Service Days
  - C. Summary of Census Data
  - D. Average Daily Inpatient Census
  - E. Formulae for Calculation of Bed Occupancy Statistics
- II. Inpatient Bed Occupancy
  - A. Percentage of Occupancy
  - B. Inpatient Bed Count
  - C. Bed Count Days
  - D. Inpatient Bed Occupancy Ratio or Percentage
  - E. Newborn Bassinet Occupancy Ratio or Percentage
  - F. Bed Turnover Rate
  - G. Formulae for Calculation of Bed Occupancy Statistics
- III. Length of Stay
  - A. Length of Stay
  - B. Leave of Absence Days
  - C. Formulae for Calculation of Length of Stay Statistics

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- IV. Mortality Rates
  - A. Guidelines for Calculating Mortality Rates
  - B. Formulae for Calculation of Mortality Statistics
- V. Hospital Autopsies and Autopsy Rates
  - A. Autopsy Rates
  - B. Hospital Autopsies
  - C. Formulae for Autopsy Rate Statistics
- VI. Morbidity and Other Miscellaneous
  - A. Morbidity Rates
  - B. Formulae for Morbidity and Other Rates
- VII. Statistics Computed within the Health Information Management Department
  - A. Health Information Statistics
  - B. Budgets
- VIII. Descriptive Statistics in Healthcare
  - A. Concepts in Descriptive Statistics
  - B. Frequency Distribution
  - C. Rank
  - D. Percentile
  - E. Measures of Central Tendency
  - F. Measures of Variation
  - G. Normal Distribution and Other Curves
  - H. Correlation
- IX. Presentation of Data
  - A. Types of Data
  - B. Data Display
  - C. Preparing Reports

### **Course Objectives**

- I. Patient Census
  - A. Perform the calculations
  - B. Differentiate between an interhospital (interfacility) transfer and an intrahospital transfer
  - C. Calculate daily census and inpatient service days using the admission and discharge data provided
  - D. Calculate census and inpatient service days with data given for newborns and transfers

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- II. Inpatient Bed Occupancy
  - A. Determine the beds that are included in a bed count
  - B. Analyze the bed occupancy percentage
  - C. Summarize the direct and indirect bed turnover rate
  - D. Formulate the direct and indirect bed turnover rate
  - E. Construct the percentage of occupancy for a period when there has been a change in the number of beds during that period
  
- III. Length of Stay
  - A. Analyze the length of stay for adults, children, and newborns
  - B. Assess the total length of stay for a group of discharged patients
  - C. Interpret the relationship between length of stay and utilization management
  
- IV. Mortality Rates
  - A. Calculate mortality rates
  - B. Contrast between general, regional, and local anesthesia
  - C. Differentiate between a direct obstetrical death and indirect obstetrical death
  
- V. Hospital Autopsies and Autopsy Rates
  - A. Identify alternate terms for autopsy
  - B. Recognize a coroner's case and determine when it would be included in a hospital's autopsy rate
  - C. Calculate autopsy rates
  - D. Utilize software to complete spreadsheets
  
- VI. Morbidity and Other Miscellaneous Rates
  - A. Summarize calculations based on morbidity, mortality, infection, postoperative infection, complication, consultation, readmission
  - B. Explain the difference between a surgical operation and surgical procedure
  - C. Identify the attributes that constitute a clean surgery case
  
- VII. Statistics Computed within the Health Information Management Department
  - A. Relate the following terms: full-time equivalent employee, budget, fiscal year, variance, and variance analysis, payback period.
  - B. Explain the use of various statistics to operations in a health information management department in terms of unit labor cost, productivity, staffing levels, and budgets
  - C. Differentiate between operational and capital budgets
  - D. Develop the appropriate statistics to use in the management of an HIM department

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### VIII. Descriptive Statistics in Healthcare

- A. Explain how and why percentiles are used
- B. Compute the percentile from an ungrouped distribution
- C. Prepare statistics measuring central tendency such as mean, median, or mode
- D. Prepare statistics measuring variation such as range, variance, standard deviation, and correlation

### IX. Presentation of Data

- A. Explain, differentiate, and apply the following terms: nominal, ordinal, interval, and ratio, and discrete and continuous data
- B. Distinguish between tables and the following graphs: bar graphs, pie charts, line graphs, histograms, frequency polygons, pictograms, and scatter diagrams, and choose the appropriate graph to use
- C. Create tables and graphs to display statistical information
- D. Prepare the basic elements of a report

## RECOMMENDED CLASS SCHEDULE (Based on Central Standard Time)

The class is completely self-paced EXCEPT for the **two (2) mandatory due dates**. The Recommended Class Schedule is posted only for those students wanting suggestions for pacing themselves during the course. Thursday, October 20<sup>th</sup> and Thursday, December 8<sup>th</sup> by 5pm CST are the two (2) mandatory due dates.

<b>WEEK</b>	<b>TOPIC</b>	<b>ASSIGNMENT</b>
Week 1	<ul style="list-style-type: none"> <li>Mathematics Review</li> <li>#1 Orientation Meeting with HIM 430 Instructor on <b>Wednesday, August 24 at 11am CST</b> (Link available via Blackboard Announcements)-<b>Please make an effort to attend #1 Orientation Meeting or #2 Orientation Meeting.</b></li> </ul>	<p>Read course syllabus</p> <p>Access all "Course Information" links via Blackboard: Instructor Information, Getting Started, and Announcements</p> <p><b>Complete Chapter 2 Assignments for practice:</b></p> <ul style="list-style-type: none"> <li>Read Chapter 2</li> <li>Complete Chapter 2 Textbook Exercises (Even Only)</li> </ul> <p><b>DUE DATE: Thursday, October 20<sup>th</sup> by 5:00 PM</b></p>
Week 2	<ul style="list-style-type: none"> <li>Mathematics Review</li> <li>#2 Orientation Meeting with HIM 430 Instructor on <b>Wednesday, August 31 at 2pm CST</b> (Link available via Blackboard Announcements)- <b>Please make an effort to attend #1 Orientation Meeting or #2 Orientation Meeting.</b></li> </ul>	<p><b>Complete Chapter 2 Assignments for practice:</b></p> <ul style="list-style-type: none"> <li>Read Chapter 2</li> <li>Complete Chapter 2 Textbook Exercises (Even Only)</li> </ul> <p><b>DUE DATE: Thursday, October 20<sup>th</sup> by 5:00 PM</b></p>
Week 3	Patient Census	<p><b>Complete Chapter 3 Assignments:</b></p> <ul style="list-style-type: none"> <li>Read Chapter 3</li> <li>Complete Chapter 3 Textbook Review</li> <li>Complete Chapter 3 Quiz via Bb</li> </ul> <p><b>DUE DATE: Thursday, October 20<sup>th</sup> by 5:00 PM</b></p>
Week 4	Patient Census	<p><b>Complete Chapter 3 Assignments:</b></p> <ul style="list-style-type: none"> <li>Read Chapter 3</li> <li>Complete Chapter 3 Textbook Review</li> <li>Complete Chapter 3 Quiz via Bb</li> </ul> <p><b>DUE DATE: Thursday, October 20<sup>th</sup> by 5:00 PM</b></p>

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<u>WEEK</u>	<u>TOPIC</u>	<u>ASSIGNMENT</u>
Week 5	Inpatient Bed Occupancy	<p><b>Complete Chapter 4 Assignments:</b></p> <ul style="list-style-type: none"> <li>• Read Chapter 4</li> <li>• Complete Chapter 4 Textbook Review</li> <li>• Complete Chapter 4 Quiz via Bb</li> </ul> <p><b>DUE DATE: Thursday, October 20<sup>th</sup> by 5:00 PM</b></p>
Week 6	Inpatient Bed Occupancy Data Analyst Guest Speaker via Zoom TBD	<p><b>Complete Chapter 4 Assignments:</b></p> <ul style="list-style-type: none"> <li>• Read Chapter 4</li> <li>• Complete Chapter 4 Textbook Review</li> <li>• Complete Chapter 4 Quiz via Bb</li> </ul> <p><b>-DUE DATE: Thursday, October 20<sup>th</sup> by 5:00 PM</b></p>
Week 7	Length of Stay	<p><b>Complete Chapter 5 Assignments:</b></p> <ul style="list-style-type: none"> <li>• Read Chapter 5</li> <li>• Complete Chapter 5 Textbook Review</li> <li>• Complete Chapter 5 Quiz via Bb</li> </ul> <p><b>DUE DATE: Thursday, October 20<sup>th</sup> by 5:00 PM</b></p>
Week 8 (Midterm)	Length of Stay	<p><b>Complete Chapter 5 Assignments:</b></p> <ul style="list-style-type: none"> <li>• Read Chapter 5</li> <li>• Complete Chapter 5 Textbook Review</li> <li>• Complete Chapter 5 Quiz via Bb</li> <li>• No Midterm Exam</li> </ul> <p><b>MANDATORY DUE DATE: Thursday, October 20<sup>th</sup> by 5:00 PM</b></p>
Week 9	Mortality Rates	<p><b>Complete Chapter 6 Assignments:</b></p> <ul style="list-style-type: none"> <li>• Read Chapter 6</li> <li>• Complete Chapter 6 Textbook Review</li> <li>• Complete Chapter 6 Quiz via Bb</li> </ul> <p><b>DUE DATE: Thursday, December 8<sup>th</sup> by 5:00 PM</b></p>
Week 10	Mortality Rates	<p><b>Complete Chapter 6 Assignments:</b></p> <ul style="list-style-type: none"> <li>• Read Chapter 6</li> <li>• Complete Chapter 6 Textbook</li> </ul>

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<u>WEEK</u>	<u>TOPIC</u>	<u>ASSIGNMENT</u>
		<p>Review</p> <ul style="list-style-type: none"> <li>• Complete Chapter 6 Quiz via Bb</li> </ul> <p><b>DUE DATE: Thursday, December 8<sup>th</sup> by 5:00 PM</b></p>
Week 11	Hospital Autopsies and Autopsy Rates	<p><b>Complete Chapter 7 Assignments:</b></p> <ul style="list-style-type: none"> <li>• Read Chapter 7</li> <li>• Complete Chapter 7 Textbook Review</li> <li>• Complete Chapter 7 Quiz via Bb</li> </ul> <p><b>DUE DATE: Thursday, December 8<sup>th</sup> by 5:00 PM</b></p>
Week 12	Hospital Autopsies and Autopsy Rates	<p><b>Complete Chapter 7 Assignments:</b></p> <ul style="list-style-type: none"> <li>• Read Chapter 7</li> <li>• Complete Chapter 7 Textbook Review</li> <li>• Complete Chapter 7 Quiz via Bb</li> </ul> <p><b>DUE DATE: Thursday, December 8<sup>th</sup> by 5:00 PM</b></p>
Week 13	Morbidity and Other Miscellaneous Rates	<p><b>Complete Chapter 8 Assignments:</b></p> <ul style="list-style-type: none"> <li>• Read Chapter 8</li> <li>• Complete Chapter 8 Textbook Review</li> <li>• Complete Chapter 8 Quiz via Bb</li> </ul> <p><b>DUE DATE: Thursday, December 8<sup>th</sup> by 5:00 PM</b></p>
Week 14	Statistics Computed within the Health Information Management Department	<p><b>Complete Chapter 9 Assignments:</b></p> <ul style="list-style-type: none"> <li>• Read Chapter 9</li> <li>• Complete Chapter 9 Textbook Review</li> <li>• Complete Chapter 9 Quiz via Bb</li> </ul> <p><b>DUE DATE: Thursday, December 8<sup>th</sup> by 5:00 PM</b></p>

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<u>WEEK</u>	<u>TOPIC</u>	<u>ASSIGNMENT</u>
Week 15	Descriptive Statistics in Healthcare	<p><b>Complete Chapter 10 Assignments:</b></p> <ul style="list-style-type: none"> <li>• Read Chapter 10</li> <li>• Complete Chapter 10 Textbook Review</li> <li>• Complete Chapter 10 Quiz via Bb</li> </ul> <p><b>DUE DATE: Thursday, December 8<sup>th</sup> by 5:00 PM</b></p>
Week 16 (Final)	<ul style="list-style-type: none"> <li>• Presentation of Data</li> <li>• Comprehensive Exam</li> </ul>	<p><b>Complete Chapter 11 Assignments and Comprehensive Exam:</b></p> <ul style="list-style-type: none"> <li>• Read Chapter 11</li> <li>• Complete Chapter 11 Textbook Review</li> <li>• Complete Chapter 11 Quiz via Bb</li> <li>• Complete Comprehensive Exam via Bb</li> </ul> <p><b>MANDATORY DUE DATE: Thursday, December 8<sup>th</sup> by 5:00 PM</b></p>

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