Chair: Tracy Christofero | **GC#6: Course Addition**

Request for Graduate Course Addition

1. Prepare one paper copy with all signatures and supporting material and forward to the Graduate Council Chair.
2. E-mail one identical PDF copy to the Graduate Council Chair. If attachments included, please merge into a single file.
3. ***The Graduate Council cannot process this application until it has received both the PDF copy and the signed hard copy.***

College: COHP | Dept/Division: Health Informatics | Alpha Designator/Number: HP 610 | (•) Graded ( ) CR/NC

Contact Person: Dr. Girmay Berhie | Phone: 304-696-2718

NEW COURSE DATA:

New Course Title: Data Analytics Tools for Healthcare

Alpha Designator/Number: H P 6 1 0

Title Abbreviation: A n a l y t i c s f o r h e a l t h c a r e

(Limit of 25 characters and spaces)

Course Catalog Description: (Limit of 30 words)
Data analytic tools useful in healthcare data analysis and healthcare administrative decision-making including health data analysis, Visualization, and reporting techniques

Co-requisite(s): None | First Term to be Offered: Spring 2019

Prerequisite(s): Graduate Status | Credit Hours: 3

Course(s) being deleted in place of this addition (*must submit course deletion form*):

Signatures: if disapproved at any level, do not sign. Return to previous signer with recommendation attached.

Dept. Chair/Division Head Girmay Berhie	Date 09/10/2018
Registrar	Date 9/13/18
College Curriculum Chair	Date 9/20/18
Graduate Council Chair	Date

Request for Graduate Course Addition - Page 2

College: COHP | Department/Division: Health Informatics | Alpha Designator/Number: HP 610

Provide complete information regarding the new course addition for each topic listed below. Before routing this form, a complete syllabus also must be attached addressing the items listed on the first page of this form.

1. FACULTY: Identify by name the faculty in your department/division who may teach this course.

Dr. Girmay Berhie

2. DUPLICATION: If a question of possible duplication occurs, attach a copy of the correspondence sent to the appropriate department(s) describing the proposal. Enter "***Not Applicable***" if not applicable.

Not Applicable

3. REQUIRED COURSE: If this course will be required by another deparment(s), identify it/them by name. Enter "***Not Applicable***" if not applicable.

Not Applicable

4. AGREEMENTS: If there are any agreements required to provide clinical experiences, attach the details and the signed agreement. Enter "***Not Applicable***" if not applicable.

Not Applicable

5. ADDITIONAL RESOURCE REQUIREMENTS: If your department requires additional faculty, equipment, or specialized materials to teach this course, attach an estimate of the time and money required to secure these items. (Note: Approval of this form does not imply approval for additional resources.) Enter "***Not Applicable***" if not applicable.

The health Informatics Department needs to acquire one faculty member with a 9-month salary in the range of 50,000 to 60,000. This position will also be required for other Health Informatics department responsibilities aside from this course. The responsibilities will include being a Health Informatics Practicum Coordinator, Health Informatics program promotion, student advising and recruitment, and other administrative responsibilities. As such, this position will need to be filled by June 30th, 2019.

6. COURSE OBJECTIVES: (May be submitted as a separate document)

Please attached syllabus.

7. COURSE OUTLINE (May be submitted as a separate document)

Please attached syllabus.

8. SAMPLE TEXT(S) WITH AUTHOR(S) AND PUBLICATION DATES (May be submitted as a separate document)

https://www.lynda.com/Tableau-tutorials/Welcome/500540/545449-4.html
https://vle.sas.com/course/view.php
Cloud Computing in Healthcare by Neha Dubey, Sangeeta Vishwakarma, Department of Computer Application, Sardar Patel Institute of Technology

9. EXAMPLE OF INSTRUCTIONAL METHODS (Lecture, lab, internship)

Recorded Lecture/ Online Course
Instructor Guided Content with Student-Driven Learning
Discussion Boards

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10. EXAMPLE EVALUATION METHODS (CHAPTER, MIDTERM, FINAL, PROJECTS, ETC.)

Midterm Exam
Homework Projects
Discussion Board Posts
Final Projects

11. ADDITIONAL GRADUATE REQUIREMENTS IF LISTED AS AN UNDERGRADUATE/GRADUATE COURSE

Not Applicable.

12. PROVIDE COMPLETE BIBLIOGRAPHY (May be submitted as a separate document)

Please see attached syllabus.

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Please insert in the text box below your course summary information for the Graduate Council agenda. Please enter the information exactly in this way (including headings):

Department:
Course Number and Title:
Catalog Description:
Prerequisites:
First Term Offered:
Credit Hours:

Department Health Informatics

Course Number and Title HP 610 Data Analytics Tools for Healthcare

Catalog Description: Data analytic tools useful in healthcare data analysis and healthcare administrative decision-making including health data analysis, Visualization, and reporting techniques.

Prerequisites: Graduate Status

First Term Offered: Spring 2019

Credit Hours: 3

I'd rather attempt to do something great and fail than to attempt to do nothing and succeed.

~Robert H. Schuller

Course Title/Number	**HP 610 – Data Analytics Tools for Healthcare**
Semester/Year	Spring 2019
Days/Time	Online Course – No Meeting times or dates
Location	Online
Instructor	Girmay Berhie, PhD, MSW, MI-IS
Office	Gullickson Hall (GH) 107
Phone	(304) 696-2718
Email	berhie@marshall.edu
Office/Hours	By Appointment; Open communication via email at any time
University Policies	By enrolling in this course, you agree to the University Policies listed below. Please read the full text of each policy by going to http://www.marshall.edu/academic-affairs/policies/. Academic Dishonesty/ Excused Absence Policy for Undergraduates/ Computing Services Acceptable Use/ Inclement Weather/ Dead Week/ Students with Disabilities/ Academic Forgiveness/ Academic Probation and Suspension/ Academic Rights and Responsibilities of Students/ Affirmative Action/ Sexual Harassment

Course Description from Catalog
Data analytic tools useful in healthcare data analysis and healthcare administrative decision-making including health data analysis, Visualization, and reporting techniques.

Student Learning Outcome (Students will...)	Practiced by:	Assessed by:
Be able to understand data analytics including terms, importance and types of data analytics in healthcare domain.	Reading assignments, Homework	Homework, Projects, Midterm
Be able to understand and apply SAS analytics techniques in healthcare data.		
Be able to understand and apply Tableau visualization techniques in healthcare data.		
Be able to summarize, analyze, and report results in clear and coherent form using analytical tool.		
Be able to understand the analytic results and use for decision making		
Be able to understand cloud computing architecture, infrastructure, pros and cons in healthcare.		
Be able to understand meaningful use stage 3		

Required Texts, Additional Reading, and Other Materials	
	https://www.lynda.com/Tableau-tutorials/Welcome/500540/545449-4.html
	https://vle.sas.com/course/view.php
	Cloud Computing in Healthcare by Neha Dubey, Sangeeta Vishwakarma, Department of Computer Application, Sardar Patel Institute of Technology

Health Statistics & Data Resources:

- *http://guides.lib.berkeley.edu/publichealth/healthstatistics/rawdata*
- *https://www.nlm.nih.gov/hsrinfo/datasites.html*
- *http://data.worldbank.org/topic/health*

Articles Referencing HCUP Data

Course Requirements/Due Dates		
Discussion Board Posts Every week there will be a discussion board post due on the assigned reading for that week.		
Homework There will be homework assignments on each major topic, and will utilize health care data sets.		
#	Description	Due beginning of:
1	Introduction	3rd Week
2	SAS analytics in healthcare data	5th Week
3	Tableau Visualization In healthcare data	7th Week
4	Cloud Computing Infrastructure and analysis	10th Week

5	Meaningful Stage 3	11th Week
6	REDCap	13th Week
7	Public health Data analysis, Visualization and Documentation	15th Week

Mid-Term: Due by Midnight Monday of the 9th week of class.
There will be a take home exam that will include multiple choice, t/f, and problem solving questions.

Project Proposal: Must have an explicit detailed write-up of planned project

Project Rough-Draft: Require all parts of the Final Project except Conclusion/Recommendations.

Final Project: Due by Midnight the last day of class.
There will be a final project in where the student will elect a project or be given a project that utilizes a healthcare data set. The project submission will include:

- *Introduction*
- *Hypothesis*
- *Methodology*
- *Findings*
- *Conclusion/Recommendation*
- *Must make use of statistical software.*

Grading Policy	
A	90-100%
B	80-89%
C	70-79%
F	Below 70%
Activities & Points	
10%	Discussion Board Posts
30%	Homework Assignments
10%	Mid-Term
10%	Project Proposal
10%	Project Rough Draft
20%	Final Project

Late Assignments will be deducted 10% for each day they are turned in late.

100% credit will be given for completing all aspects of the assignment correctly. Any points deducted will have an accompanying explanation.
10% extra credit can be earned on any assignment in which a student goes above and beyond the requirements or produces otherwise exceptional work.

Attendance Policy
Online class: Not applicable.

Week	Topics
1	Chapter 1 Data analytics in Healthcare 1.1 Introduction to data analytics 1.2 Data analytics terms 1.3 The role of Data analytics in healthcare
2	1.4 Types of Data analytics 1.4.1 Descriptive 1.4.2 Diagnostic 1.4.3 Predictive 1.4.3 Prescriptive 1.5 Main Databases used in the healthcare industry
3	Chapter 2 Tableau 10 Essential Training 2.1 Introducing Tableau 2.2 Managing Data Sources and Visualization 2.3 Managing Tableau worksheets and workbooks 2.4 Creating custom calculation and fields 2.5 Analyzing Data using statistical tools
4	2.6 Defining Groups and sets 2.7 Creating and pivoting crosstabs 2.8 Formatting Tableau Visualization 2.9 Creating basic charts 2.10 Annotating and formatting charts 2.11 Mapping Health data to its Geographic location 2.12 Creating dashboards and actions
5	Chapter 3 SAS for Health Data visualization 3.1 SAS Essentials 3.1.1 using SAS programing tools 3.1.2 understanding SAS syntax 3.2 Accessing Data from different Healthcare Databases 3.2.1 Understanding Types of SAS data 3.2.2 Accessing Data Through Libraries 3.2.3 Importing Data into SAS from healthcare Databases
6	3.3 Exploring and Validating Data 3.3.1 Exploring data with procedures 3.3.2 Filtering Rows 3.3.3 Formatting Columns 3.3.4 Sorting and Removing Duplicates
7	3.4 Preparing the Data 3.4.1 Reading and Filtering Data Using DATA steps to create SAS Data set

	3.4.2 Computing New Columns 3.4.3 Conditional Processing
8	3.5 Analyzing and Reporting on Data 3.5.1 Enhancing report with Titles, Footnotes and Labels 3.5.2 Creating Frequency Reports 3.5.3 Creating Summary Reports and Data 3.6 Exporting Results 3.6.1 Exporting report to excel 3.6.2 Exporting report to PowerPoint 3.6.3 Exporting report to pdf
9	Chapter 4 Cloud Analytics in Healthcare 4.1 Introduction 4.2 Cloud computing Architecture 4.3 Cloud Infrastructure 4.4 Pros and Cons of cloud in healthcare
10	Midterm Due
11	Spring Break
12	Chapter 5 Business Intelligence in Healthcare
13	Chapter 6 REDCap database
13	Chapter 7 AI & Machine Learning
14	Thanks, Giving Break
15	Chapter 8 Meaningful Use Stage 3
16	Final Project Due