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: Medicine   Dept/Division:Department of Clinic   Alpha Designator/Number: CTS 637   ● Graded   ○ CR/NC

Contact Person: DR. ALFRED CECCHETTI   Phone: 304-691-1585

NEW COURSE DATA:

New Course Title: Introduction to Tableau: From Clinical Data to Clinical Intelligence

Alpha Designator/Number: | C | T | S | | 6 | 3 | 7 | | | |

Title Abbreviation: | I | n | t | r | o | d | u | c | t | i | o | n | | t | o | | T | a | b | l | e | a | u | | |

(Limit of 25 characters and spaces)

Course Catalog Description:
(Limit of 30 words)

> Tableau is a tool enabling digestion of ever-increasing clinical information through visual discovery, analytics, dashboards and storytelling. Students will learn the fundamentals of creating interactive visual displays using medical data.

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

Prerequisite(s): None   Credit Hours: 3

Course(s) being deleted in place of this addition (*must submit course deletion form*):   None

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

Dept. Chair/Division Head _____   Date _____

Registrar _____   Date _____

College Curriculum Chair _____   Date _____

Graduate Council Chair _____   Date _____

College: Medicine   Department/Division: Department of Clinical and T   Alpha Designator/Number: CTS 637

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.

Niharika Bhardwaj, MBBS, MSHI

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.

This course unique in the following ways:

1. Focused on visual analytics of synthetic clinical data derived from real local clinical data using Tableau
2. Provides knowledge of how to perform advanced statistical analysis through use of R in Tableau
3. Emphasis on Clinical aspect of healthcare, not business.

Other courses are broader and are more business-oriented.

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.

Not Applicable

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

After completing this course, students should have a good understanding of the basics of Tableau. The student should be able to:
1. Know how to ask the "right" questions that make clinical sense
2. Understand data visualization principles, methods, and techniques
3. Design and implement wide variety of data visualizations
4. Identify which visualizations are appropriate for various types of data and for different goals
5. Apply an understanding of human perceptual and cognitive capabilities to the design of data visualizations to help users understand data

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

Module 1 - Introduction to Tableau
Module 2 - Fundamentals of Visualization and Data Modeling
Module 3 - Data Visualization Best Practices and Not-So-Best Practices
Assignment/Quiz 1
Module 4 - The Use of Color in Data Visualization and Dashboard Design
Module 5 - Developing worksheets and dashboards
Module 6 - Interactive Data Visualization
Assignment/Quiz 2
Module 7 - Mapping Data
Module 8 - Tableau and the Data Warehouse
Module 9 - Tableau and Machine Learning with Model Building
Final Project Presentations

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

No textbooks required
Laptops with Tableau installed are required. Tableau Academic Edition will be provided free-of-charge

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

Lecture

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

Assignments (150 Points), Quizzes (100 Points), Final Project(250 Points)

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

None

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

https://www.tableau.com/

Baldwin, D. (2016). Mastering Tableau. Packt Publishing Ltd.

Request for Graduate Course Addition - Page 5

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: Department of Clinical and Translational Sciences (DCTS)

Course Number and Title: CTS 637 - Introduction to Tableau: From Clinical Data to Clinical Intelligence

Catalog Description: Tableau is a tool enabling digestion of ever-increasing clinical information through visual discovery, analytics, dashboards and storytelling. Students will learn the fundamentals of creating interactive visual displays using medical data.

Prerequisites: None

First Term Offered: Summer 2019

Credit Hours: 3

CTS 637 Introduction to Tableau: From Clinical Data to Clinical Intelligence
Joan C. Edwards Marshall University School of Medicine
Summer 2019

General Information:
Professor: Niharika Bhardwaj
Phone: 304-691-5397
Email: bhardwaj1@marshall.edu
Office: 281 TGRI, ECCC 2nd Floor
Office Hours: No set office hours. Please contact faculty to arrange a time to meet.
Lecture: TBA

Course Description: There is an ever-increasing pool of clinical data flowing in from a wide variety of sources ranging from electronic health records, disease registries, surveys, smart homes, wearable devices etc. Tableau is a business/clinical intelligence tool that makes it easier to process this massive stream of information through data visualization, data discovery, visual analytics, dashboards, and visual storytelling. In this course, students will learn the fundamentals of creating interactive visual displays using an industry standard visualization tool using real medical data.

Pre-requisites: None

Credit Hours: 3

Text and Material: No textbooks required.

Software: Laptops with Tableau installed are required. Tableau Academic Edition will be provided free-of-charge.

Course Objectives:
After completing this course, students should have a good understanding of the basics of Tableau. The student should be able to:
1. Know how to ask the "right" questions that make clinical sense
2. Understand data visualization principles, methods, and techniques
3. Design and implement wide variety of data visualizations
4. Identify which visualizations are appropriate for various types of data and for different goals
5. Apply an understanding of human perceptual and cognitive capabilities to the design of data visualizations to help users understand data

Course Outcomes:

Student Learning Outcomes	How Outcome Will Be Practiced	How Outcome Will Be Assessed
Know how to ask the "right" questions that make clinical sense	In-class discussion	Final Project
Understand data visualization principles, methods, and techniques	In-class discussion	Assignment/Quiz & Final Project
Design and implement wide variety of data visualizations	In-class discussion	Assignment/Quiz & Final Project
Identify which visualizations are appropriate for various types of data and for different goals	In-class discussion	Assignment/Quiz & Final Project
Apply an understanding of human perceptual and cognitive capabilities to the design of data visualizations to help users understand data	In-class discussion	Final Project

Course Syllabus:

Topic
Module 1 - Introduction to Tableau
Module 2 - Fundamentals of Visualization and Data Modeling
Module 3 - Data Visualization Best Practices and Not-So-Best Practices
Assignment/Quiz 1
Module 4 - The Use of Color in Data Visualization and Dashboard Design
Module 5 - Developing worksheets and dashboards
Module 6 - Interactive Data Visualization
Assignment/Quiz 2
Module 7 - Mapping Data
Module 8 - Tableau and the Data Warehouse
Module 9 - Tableau and Machine Learning with Model Building
Final Project Presentations

Grades:

Student performance is based on the scores achieved on assignments and the final project. The point totals for each assignment and final project are as follows:

Assignment/Quiz 1	150 points
Assignment/Quiz 2	100 points
Final Project	250 points

Final letter grades will be assigned as follows based upon the average percentage obtained on the assignments, quizzes and the final project. Grades will be posted on MU Online as soon as reasonably possible after each exam.

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

Class Policies:

By enrolling in this course, you agree to abide by the University policies listed below. Please read the full text of each policy by going to http://www.marshall.edu/academic-affairs and clicking on "Marshall University Policies".

Academic Dishonesty

Academic dishonesty will not be tolerated. Policy AA-12 defines academic dishonesty and describes the sanctions associated with it.

Inclement Weather

Policy GA-9 describes the policy on weather-related and/or emergency closings and delays. As this is an afternoon class, we will not be affected by delays. To find out if the University is closed, please call Audix at 696-6245.

Students with Disabilities Policy

Students with disabilities are required to prepare a notice either from the Help Center, Myers Hall, or Sandra Clements, PH 117, before a special accommodation can be honored. The link describing this policy is http://www.marshall.edu/disabled.

University Computing Services Acceptable Use Policy MUBOG Policy IT-1 explains this policy (http://www.marshall.edu/president/board/policies.html).

Cell Phone Use

Cell phone use, including texting, will not be tolerated in the class, unless authorized by the instructor. If special circumstances exist such that a student needs to be in communication with family members or friends during a class, please inform the instructor before the class begins.

Permission will be granted on a case-by-case basis and at the sole discretion of the instructor. If a student persists in using cell phones, including texting, after they have been asked to stop, the student will be removed from the class.