USF Sarasota-Manatee - New Undergraduate Course Proposal Form – COURSE ORIGINALLY SUBMITTED AS ISM 4201

1. **College/School Contact Information**

   Tracking Number   Date & Time Submitted
   110   2016-01-11 12:09:43.0

   Discipline   College/School   Budget Account Number
   Information Technology   380700004

   Contact Person   Phone   Email
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2. **Course Information**

   Prefix   Number   Full Title
   ISM   4545   Big Data Processing with R
   Is the course title variable?   N
   Is a permit required for registration?   N
   Are the credit hours variable?   N
   Credit Hours   Section Type   Grading Option
   3   Class Lecture (Primarily)   Regular

   Abbreviated Title (30 characters maximum)
   Big Data Processing with R

5. Prerequisites
   STA 2122, with a minimum grade of C-
6. Corequisites
7. Co-Prerequisites
8. Course Description
   This course covers how to process Big Data using an open-source computing platform called R. Fundamental, intermediate and advanced concepts of R are covered. The course also covers some other computing tools that are currently popular, e.g. SAS, Python.
9. **Justification**

   (This section is critical since the APC members will make their decision based on the information provided here. The information should be in the following outline form.)

A. Indicate how this course will strengthen the Undergraduate Program. Is this course necessary for accreditation or certification?

This course/concentration fills a gap in the IT Program's current course offerings. It will also increase visibility and demand for the IT Program. This course is not required for accreditation.

B. What specific area of knowledge is covered by this course which is not covered by courses currently listed?

Big Data is an emerging technology and there is a high demand for it. This course provides needed technology support for Big Data. The material in this course is not covered by any existing course we offer.

C. What is the need or demand for this course? (Indicate if this course is part of a required sequence in the major.) What other programs would this course service?

Big Data is an emerging technology and there is a high demand for it. This course provides needed technology support for Big Data. This course is part of the IT Program.

D. Has this course been offered as Selected Topics/Experimental Topics course? If yes, what was the enrollment?

No. This course will be offered for the first time during Fall 2016.

E. How frequently will the course be offered? What is the anticipated enrollment?

This course will be offered once per year. The anticipated enrollment is 20 students.

F. Do you plan to drop a course if this course is added? If so, what will be the effect on the program and on the students? (If dropping/deleting a course please complete the nonsubstantive course change form.)

This course is part of a new concentration (Big Data) being proposed. The concentration involves defining 3 new courses and incorporating existing courses as well. The IT Program will be enhanced by offering this latest emerging technology and students will have an additional choice of specialization.

G. What qualifications for training and/or experience are necessary to teach this course? (List minimum qualifications for the instructor.)

A PhD in a relevant area is highly recommended.

10. **Other Course Information**

A. Objectives

1. To make the learn how to use Rs capabilities for processing Big Data. 2. To familiarize the student with other technologies for processing Big Data that are current at the time the course is offered.

B. Learning Outcomes

1. Will have a beginner and intermediate understanding of R language 2. Will have a beginner and intermediate understanding of a data miner such as Rapid Miner 3. Can apply the knowledge of R and Data Mining for some typical Big Data processing tasks such as text mining, visualization, large dataset processing.

C. Major Topics

1.History of R 2.Advantages of using R 3.Exploring R-Studio 4.Basic Programming Concepts in R 5.Multidimensional Computing using Vectors and Matrices 6.Packages in R 7.Visualization with R 8.Scientific Calculations with R 9.Text Mining with R 10.Statistical Calculations with R 11.Rapid Miner Processes for Big Data processing.

D. Examples of Course Textbooks and Course Readings

1. Hands-On Programming with R, 2014, by Garrett Grolemund, OReilly Media. 2. Advanced-R, 2014, by Hadley Wickham, CRC Press. 3. Exploring Data with RapidMiner, 2013, by Andrew Chisholm, Packt Publishing.

11. **Syllabus**

Please submit an electronic copy of your syllabus to Rhonda Moraca, moraca@sar.usf.edu.