MSIS 5223 CRN 26981
Programming for Data Science and Analytics
Syllabus – Fall 2018

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Welcome to Programming for Data Science and Analytics. The primary means of communication for this course will include Brightspace announcements, in-class announcements, and email. To contact me, please use the email address specified above. Please use my office hours to speak with me for any concerns or questions. You may also use online discussion boards to seek answers from classmates.

Prerequisites

This course does not have any official prerequisites. However, it would be beneficial for you to have a basic understanding of database management systems, database design, as well as programming. This is important in understanding the data that influences every aspect of data mining and analytics. I assume you have a basic understanding of statistical fundamentals.

Course Value

As an Information Systems major, an understanding of the role of analytics within a business is crucial to staying competitive. Analytics utilizes technology, expertise, knowledge, statistics, and creative thinking to find solutions to problems. This course will provide you with the tools and experience to conduct an analytic project from sourcing the data to interpretation.

Textbook

- Optional Text: Crawley, M. J. 2012. "The R Book," 2nd Edition, *Wiley*, pp. 1076.
- Optional Text: Pickup, Mark 2015. "Introduction to Time Series Analysis," *Sage*, pp. 232.
- Optional Text: Cowpertwait, Paul S. P., and Metcalfe, Andrew V. 2009. "Introductory Time Series with R," *Springer*, pp. 254.

Statistical Packages

During the semester, you will be using two different types of statistical packages to enable you to conduct a wide variety of work. You will use both R and Python to conduct your work. While R is mainly used through the R console, Python provides many different interfaces to perform your work. This course will mainly rely on IPython, though you are welcome to use alternatives (e.g. Visual Studio). The websites for these two packages can be found at the following locations:

- R (http://www.r-project.org/)
- Python (http://pandas.pydata.org/pandas-docs/stable/install.html)

Course Objectives

The main objective of this course is for the student to develop an understanding of the role of computer based information systems in direct support of managerial decision making (nowadays commonly referred to as business intelligence and analytics). Specifically, at the end of this course you should develop

- knowledge about managerial decision making, business intelligence, analytics, decision support systems and how they relate to other types of information systems,
- knowledge about DSS architectures, development methodologies and enabling technologies (such as Analytical Hierarchy Process, Expert Systems, Neural Networks, Knowledge Management, Data Mining),
- and knowledge about Analytics enabling software packages, a general understanding, and some hands-on capabilities.

Instructor Response

The instructor will respond to student communication within 24 hours, Monday through Friday. Communication through email receives a faster response compared to voice mail messages left on the phone. For basic questions concerning homework, please email the TA.

Grading Criteria and Required Work

Grading criteria for the semester		Grading Scale	
Quizzes	15%	90% - 100%	A
ICEs	15%	80% - 89%	B
THAs	25%	70% - 79%	C
Exams	40%	60% - 69%	D
Professionalism	5%	Below 60%	F

Quizzes

Quizzes will be made available on the day they are assigned (please see schedule) and end exactly 10 minutes after you start the quiz; see Brightspace for scheduled times. This is aimed at assessing the knowledge and skills learned for a given week. You are allowed to miss one quiz during the semester. If you have a University excused absence, you may take a different version of the quiz on a different day. Notice must be given prior to class. Any notice given after or during the quiz, except for an emergency, will not qualify as an excuse. If you are allowed a make-up, it will be in a different form/version from that given to the class.

Exams

During the semester you will have two examinations, a midterm exam and a final exam. The midterm examination will cover all material covered in class up to that point. The final examination will be comprehensive; however, it will focus more heavily on the material covered during the second-half of the semester. Both exams will be done online using D2L/Brightspace.

Integrative Class Exercises (ICE)

These assignments are designed to integrate the knowledge of specific mechanics of R and Python for statistical procedures. They are meant to encourage learning and understanding of the concepts covered in R and Python. As the purpose is to provide a learning experience, students receive full credit for attempting the assignment. That is, wrong answers are not penalized. Where can you lose points? If you do not attempt a part of the ICE, you will lose points for that portion. You are allowed to seek help from fellow classmates and work on these with each other if you desire.

Take-Home Assignments (THA)

Individually assigned, these take-home assignments focus more on concepts, rather than specific mechanics. You must turn in your typed, well-organized write-up electronically (using Brightspace's "Assignments" submission procedure) on the stated due date. The homework assignments are to be solved individually. This means that you are not to solve problems together or compare answers prior to turning in the work. Cooperative efforts on individual work will result in an immediate score of zero for all parties involved. These assignments are more complex and require more time than ICEs.

Professionalism

As in all business courses, students are expected to act professionally inside and outside of the classroom. To facilitate and develop these attributes you will be assessed by the following:

1. *Appropriate Use of Help*. When requesting help from the professor, you are expected to have read the background material and have made a reasonable effort to solve the problem beforehand. It is important that you exercise your ability to think and problem-solve before asking for help. Asking for help when you have not made a sincere effort to complete the problem or assignment is not acceptable.
2. *Courteous Behavior*. Professionalism includes treating the professor and other class members with courtesy and respect. Examples of discourteous behavior include—but are not limited to—groveling for points, demeaning someone else's comments or work, and not putting forth your best effort.

Grade Disputes

If you feel an assessment has been graded unfairly or if you feel you have a better solution, write up your dispute and send it to me via email or bring it during office hours; if you print out your dispute, *do not leave it under the office door, outside the door, or any place in which it can be potentially lost*. You must dispute a grade within one week of grading.

Computer Requirements

The following are requirements for this course:

- A broadband internet connection
- Windows 7 or Mac OS Mavericks or newer operating system are preferred (Windows 10 for my course)
- 8 GB of RAM for Visual Studio
- Google Chrome or Mozilla Firefox web browser
- Note: lecture videos are not compatible with Internet Explorer or Edge; VLC Viewer video player (click on link to download video files)

Academic Integrity

You are to do your own work where specified. Do NOT use "helpers;" do them completely on your own. Doing it with someone else or having a "coach" or having someone else do it for you constitutes CHEATING and can result in an "F" for a course grade.

You can talk with other students on your assignments where it is allowed. Do NOT copy part or all of anyone else's assignment; and do NOT allow another to copy part or all of yours. This will result in an F for a course grade.

OSU has a policy on academic integrity. You are expected to abide by this policy in this class. Violations may subject you to disciplinary action including the following: receiving a failing grade on an assignment, examination or course, receiving a notation of a violation of academic integrity on your transcript (F!), and being suspended from the University. You have the right to appeal the charge. Contact the Office of Academic Affairs, 101 Whitehurst, 405-744-5627, http://academicintegrity.okstate.edu/.

Accommodations for Students with Disabilities

If you require testing or homework accommodations as certified by the Student Disability Services (SDS), then please inform me in writing now. (This is not required for accommodations, but information for me.) If you need any type of accommodation due to a disability, please ensure the SDS has mailed me the appropriate documentation. Students are responsible for requesting accommodations from the SDS. You must submit a written request for any accommodation to me at least five school days before each of the exam dates. Please schedule a meeting with me in my office to discuss arrangements. For more information about OSU Student Disability Services, please go to: http://sds.okstate.edu.

University Drop Policy

Information about the university drop policy and dates are available at http://registrar.okstate.edu. To drop this course, login to Banner self-service or contact the Registrar's Office at 405-744-6876.

Syllabus Attachment

For more student resources, go to: https://academicaffairs.okstate.edu/content/resources-students