ANLY 500, Data Analytics (3 Credits) **Fall 2016**

Name and Contact Information

Instructor
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Course Description and Learning Objectives

Data Analytics – ANLY500 - Course Description
The class runs from August 27th through December 10th with 3 Executive (in person) classes in Harrisburg and online classes every Tuesday from 8:00 pm to 9:00 pm EST.

Executive classes will be held in Harrisburg on the following dates:

- 08/27/2016 - Saturday - 01:00 am - 05:00 pm
- 10/22/2016 - Saturday - 01:00 am - 05:00 pm
- 11/19/2016 - Saturday - 01:00 am - 05:00 pm

This course provides an overview and introduction into Data Analytics, foundations of research methodology, and the R programming language. Students completing this course will understand the role of Research and Analytics in today's organizational environments as well as commonly used tools and practices typically used in the industry. Students will be given the opportunity to apply their learning during assignments, hands-on learning sessions, and group projects.

Course Equivalencies
Course equivalencies or transfer credit may be granted by the Registrar / Provost for equivalent coursework performed at other intuitions.

Prerequisites and Co-requisites
Students must have successfully completed a Baccalaureate degree with a grade of B- or better in either Calculus I or a 200 level Statistics course.

Minimum Student Technology Requirements
In order to have a quality learning experience in your online courses, the university requires that your primary computer (the computer used to access course materials and on which you will be required to install course-specific software) meets or exceeds the following specifications:

- 1 GHz or better CPU
- 2 GB Memory (RAM)
- Working DVD-ROM drive
- 100GB Hard disk
- Working Microphone and Speakers

Students are also required to meet the following general technology requirements:

- Have administrator rights on their PC (in order to install software)
- Access to broadband internet
- Have a current (up to date) web browser installed, such as Internet Explorer (Google Chrome can cause technical problems with Adobe Connect
- Have Adobe Flash plug-in installed
- Have Apple QuickTime plug-in installed
- Have Adobe Reader (free download) installed
- Have the Microsoft Office Suite (Word, Excel, PowerPoint) installed

Goals and Learning Objectives for the course
The main goal of this course is to provide students with an understanding of data analytics processes and technologies and provide a foundation of the skills necessary to become a data analytics professional. At the conclusion of this course, students will be able to:

- Demonstrate an understanding of the underlying methods and technologies used in business analytics;
- Analyze and applied alternate methods for designing, developing and implementing Business Analytics tools;
- Evaluate alternative technologies and tools used in Business Analytics;
- Identify and justify opportunities for management support systems development and the specific considerations which apply in their effective management.

Textbooks and other course materials

Required Text

This is the only textbook required for the class – Bhattacherjee, Anol, "Social Science Research: Principles, Methods, and Practices" (2012). Textbooks Collection Book 3. http://scholarcommons.usf.edu/oa_textbooks/3

This Book is brought to you for free and open access by the USF Tampa Library Open Access Collections at Scholar Commons and is available at this link:

http://scholarcommons.usf.edu/cgi/viewcontent.cgi?article=1002&context=oa_textbooks

Hands-on Learning Session Resources
A variety of resources will be introduced and used over the course of the semester. Resources will include reading materials, video or audio links, data resources, and programming guides and tips.

Computer-Based Resources
Moodle will be our platform for all course activities. All assigned activities can be worked on at any point and from any location however make sure you allocate sufficient time to complete each activity completely. Project teams are responsible for coordinating work efforts and may use other computer based resources (for example, Skype or Google Hangout) in order to accomplish their work.

The Harrisburg University Moodle Site is available at: https://moodle.harrisburgu.net
(Please remember to check this site often for course updates and information.)

Also please note: If you use a friend's computer – be sure to log into HU resources (Moodle, etc.) using YOUR account. Work will not be accepted if it does not come from the student's Harrisburg University account.

Assignments and Grading Policies

General Information on Student Assessment
Students' learning will be assessed through a variety of means: contributions to in-class and on-line discussions, preparedness for and participation in hands-on exercises, effectiveness of collaboration with peers, and final paper / presentation of the group project.

Plan for Determining Final Grades
Attendance at in-person and online lectures/laboratories is expected and required.

	Contribution to Grade	Comment
Student Contributions	10 %	asks questions in review sessions adds to in-class discussions
In-class work assignments	15%	hands-on activities during class
R Programming / Data Analysis assignments	30 %	team/individual projects
Term Project and Presentation	45 %	3 sub-components including presentation
Course Total	**100%**	

Note: The Moodle course site does NOT ALWAYS calculate final course grades correctly. If you have any questions regarding your grade for the course, please ask your instructor.

Identification/Brief Description of Major Assignments

1) Student Contributions: Students will be graded weekly on their participation in class, class discussions, attentiveness, on-time arrival, and group activities.

2) In-Class Work Assignments: Over the course of the semester several small individual work assignments will be required. These activities will typically include using the R programming environment to conduct analysis and publish results to the class.

3) R Programming and Data Analysis Assignments: More detailed programming assignments will be assigned for out of class work. These projects will be more involved than the in-class assignments and may be worked on with your project teammates.

4) Term Project:
This is a group project that will require work over the course of the entire semester by all members of the project team. There will be two intermediate deliverables (Project Proposal, Project Draft) along with a group presentation and delivery of the final results and write-up.

Separate, detailed handouts for assignments will be provided on the Moodle site.

Policy on Participation in Lecture
Students should read text/supplemental materials prior to meetings. Attendance will be recorded. All assignments MUST submitted through the Moodle site, except for in-class work assignments. Students are asked to refrain from exiting/re-entering the classroom during in-person lectures. Phones, pagers, etc., must be turned off or silenced; the use of these during meetings is not allowed.

Email Policy
It is the policy of Harrisburg University that university business be conducted using a HarrisburgU.net or my.HarrisburgU.net email account. Emails to your instructor should be written clearly and concisely; it should contain a salutation and your name at the end.

Assignment Submission Policy and Naming Convention
All assignments will be submitted through the Moodle submission facility – sending in homework or group assignments through email is the last resort for issues related to Moodle itself.

Please use the following naming convention when submitting individual or group assignments:

For individual assignments:
"Assignment#_StudentID_FirstName" with the appropriate extension (docx, pptx, Rmd, R, etc.)

For group or team assignments:
"Assignment#_StudentID_TeamName" with the appropriate extension (docx, pptx, Rmd, R, etc.)

If you have to submit multiple versions of any one environment – please add a "_VX.x" (e.g. V1_1) after the first name or team name.

Laptop Policy
Students are required to bring their laptops to in-person classes. It is expected that all students will have a working wireless network connection at ALL meetings. All coursework and

assignments will be administered through the Harrisburg U Moodle Website. Students are encouraged to use laptops during lecture in a manner which *enhances* their learning experience.

Policy on Extra Credit
This course has been designed to provide an appropriate variety of assignment types to reinforce course material and assess students' learning. Extra credit assignments will not be available for this course.

Students experiencing difficulty in the course should notify their instructor as soon as possible.

Policy on Late Assignments
Late assignments must be discussed with the Professor as far ahead of time as possible. Assignments turned in late will be graded but will be reduced by 1 letter grade.

Course Principles

Experiential learning
Students are expected to perform hands-on work for some sessions of this course and to participate in discussions (both in person and online). If a student has difficulty performing these activities due to injury or disability, please notify your instructor so appropriate support or resources may be provided.

Evaluation and Assessment
As outlined above, multiple evaluation and assessment techniques will be used in this course.

Active learning
Students are encouraged to take an active role in this course. The hands-on exercises have been designed to reinforce key concepts from the lecture. If students take an active role in learning the material, they will learn the subjects in greater depth and retain the information for a longer time. Students who actively learn material will be better able to apply that knowledge in meaningful ways.

Group work
Group work performed on the group research project will help to build soft-skills like teamwork and collaboration, one of the HU core competencies.

Knowledge integration
No subject exists in a vacuum. Concepts in this course will be valuable in upper-level courses. The use of data analytics tools and practices have broad and deep applicability throughout a number of modern industries..

Writing, quantitative, and technology components
Please see descriptions of the HU Competencies (below) for information on the importance of effective communication and critical thinking. The ability to use computer technologies is

crucial to a successful career in the modern workplace. The ability to communicate clearly and effectively and work within a team framework is absolutely critical to success.

Competencies to be emphasized

HU Core Competencies Developed in this Course:

Critical Thinking & Problem Solving	Teamwork & Collaboration
Communication	Information Literacy

The following are definitions of selected core competencies, reproduced from the HU Core Competency Document:

1) **Critical Thinking**: The ability to evaluate and integrate multiple sources of information through experience, reason and training. Critical thinkers will demonstrate aptitude in –

    a. Drawing conclusions
    b. Recognizing and differentiating facts, opinions and inferences
    c. Being aware of diverse connections.
    d. Ability to revise conclusions as new information becomes available.
    e. Recognize and work through problems

2) **Communication**: The skill of successful understanding while exercising the two-way flow of information through different methods including spoken, written and illustrative exchange. Those demonstrating communication skills will show aptitude in –

    a. Professional comportment in appropriate situations
    b. Formulation of organized arguments
    c. Comfort with presenting their ideas in different forms
    d. Comfort with different audiences

3) **Teamwork and Collaboration**: The ability to work effectively with others in a concerted effort toward a common goal. Those showing effective skills at collaboration will demonstrate an aptitude in –

    a. Recognizing how to maximize a group's efficiency through the strengths of individual group members
    b. Planning and realistic goal setting
    c. Displaying individual responsibility to the whole

4) **Information Literacy**: The knowledge and familiarity with different media types along with efficient storage and retrieval methods. An information literate citizen will demonstrate an aptitude in –

    a. The ability to recover information appropriate to given issues, arguments or problems

b. The ability to quickly evaluate sources and content in an information rich world
c. The ability to condense information to salient and concise arguments

Student Support

There may come times when you encounter a difficult concept/activity or have difficulty completing a task due to a technological problem. Do not necessarily wait until class time to solve the problem; by then, it may be too late. As soon as you realize your situation, seek help from a classmate, the course instructor, a tutor at the Student Center, or the HELPDESK.

There are many resources available to you:

1. Advising (career aptitude, study skills, time-management), e-mail: Dr. Laura Dimino, Assistant Director of Academic Success Programs and Services, LDimino@HarrisburgU.edu or Advising@HarrisburgU.edu
2. For computer, software, or printer problems submit a request to Helpdesk@HarrisburgU.edu
3. Research resources and Library, e-mail: Library@HarrisburgU.edu
4. Tutoring, e-mail: Tutoring@HarrisburgU.edu
5. There is a regularly scheduled Math Lab for small group tutoring; hours will be posted on Moodle, or contact LDimino@HarrisburgU.edu
6. Online tutoring: www.smarthinking.com
7. Study groups, e-mail LDimino@HarrisburgU.edu
   Model Students may hold study sessions for some courses.

All students are required to buy access to Campus Toolkit. The **Campus Toolkit** website: www.CampusToolkit.com

Honor Code

The Honor Code statement is reproduced from the HU Syllabus Guidelines Document:

All students are required to abide the HU Honor Code which includes academic integrity and personal responsibility for learning. Students are responsible for understanding the requirements for each course, and for complying with the rules. Students are responsible for reading and understanding the **HU Student Code of Conduct/Honor Code** in the Student Handbook at http://www.harrisburgu.edu/current-students/. Students are expected to adhere to it at all times.

There is zero tolerance for plagiarism at Harrisburg University. Plagiarism will be punished to the maximum extent possible. To plagiarize is to steal the idea(s) or words of another and pass them off as your own. All students learn about this topic in English 105 or English 106, and will be held accountable. Incidences of plagiarism, cheating, or any form of academic dishonesty will result in, at a minimum, a grade of "F" for the related assignment and/or for the entire course.

Please note this syllabus may change over the course of the semester as new topics arise in class or are made available in RStudio.

Also – we have a wide variety of skills, knowledge, work experience, programming, and analytic capabilities among the people in the classroom, please be helpful and informative in sharing your ideas and knowledge with other people still coming up to speed.

Finally, my expectation is that you will have already read the textbook and supplementary readings AHEAD of class, it will make the class sessions more lively and you will gain more from the class by being prepared.