



# COURSE INFORMATION

**Course Number and Title: BUAD 5112: Competing Through Business Analytics**

**Credits: 4**

## Description

This course, as one of the first courses you take in the Master of Science in Business Analytics Program, introduces you to the language of business analytics, some of the methodologies you will learn throughout this program, and the process through which analytics is done. In addition, you will see how those methodologies deliver value in various business contexts. This course also provides your first experiences in communicating the results of complex analyses clearly and convincingly. Employers expect excellent communication skills, so we will focus on them throughout the program. You will also develop some technical skills, such as reinforcing your Python programming skills, learning how to create successful algorithms, and learning how to acquire data from the Internet.

## Course Outcomes

By the end of the course, students will be able to:

- Execute the business analytics process and articulate the most challenging facets of each step in the process.
- Critique visualizations of data.
- Deliver presentations using effective visualizations of data.
- Acquire XML, JSON, and HTML data from the Internet (web scraping) and recognize data in those formats.
- Write algorithms and recognize the characteristics that render them effective.
- Identify different types of analytics solutions and how they are successfully integrated into an organization's structure.
- Articulate ethical issues relating to business analytics.
- Build an online portfolio.

## COURSE DETAILS

### Text and Resource List

#### *Required Books and Articles*

- Steiner, C. (2013). *Automate this: How algorithms took over our markets, our jobs, and the world*. New York, NY: Penguin.
  - ISBN: 978-1591846529



- Bradley, J. R. (2015). *Improving business performance with Lean*. New York: Business Expert Press.
  - ISBN (paper): 978-1-63157-051-3; ISBN (electronic): 978-1-63157-052-0
  - [Electronic version available free to W&M students](#)
- Knafllic, C. N. (2015). *Storytelling with data: A data visualization guide for business professionals*. Hoboken, NJ: Wiley.
  - ISBN: 978-1119002253
- Whang, S., Saito, H., Van Horne, S., Koshijima, C., & Udea, T. (1997). [Seven-Eleven Japan](#). Brighton, MA: Harvard Business Publishing.
  - *Note that to purchase this individual case, you will need to register in Harvard Business School Publishing as neither a student nor an educator (Select 'I am neither of these.').*

## Additional Readings

Articles pertinent to the weeks' topics will be posted for students on Canvas. As the course progresses, timely articles might be added as well.

## Course Structure

The topics in this course are many and varied, as necessitated by its being an introduction to this program. The pedagogy varies with the topics, therefore there is no repeatable sequence of activities from module to module. Accordingly, the "Module at a Glance" page of each module provides a glimpse of the material for each module and suggestions for its successful completion.

## Outline of Course

This course will be broken up into seven weeklong modules. The following outline presents the topics to be covered in each module:

Module 1: Introduction to Business Analytics and Visualization

Module 2: Effective Visual Communication

Module 3: Effective Presentation of Analytics

Module 4: Implementing Change Through Analytics

Module 5: Acquisition of Internet Data

Module 6: Algorithms

Module 7: Algorithms and Ethics



## Grading Methodology

Performance in this course will be assessed through completion of the following activities. The [Honor Code Categories](#) noted in this table describe the acceptable forms of interaction that are permitted in the process of completing each assignment.

Assignment Name	Points	Percentage	Team/ Individual	Honor Code Category
Case Analyses	220	22%	Team/ Individual	B/A
Programming Assignments	455	45.5%	Individual	C
Presentations and Visualization Assignments	245	24.5%	Team/ Individual	B/A
Book Report	80	8%	Individual	A
Total	1000	100%		

### ***Case Analyses***

The case assignments address the following issues: the business analytics process, deriving value from business analytics, and successful implementation of analytics solutions within organizations. These assignments require, mostly, qualitative answers to questions, which are substantially different from the technical deliverables, such as the programming assignments.

### ***Programming Assignments***

These assignments are skills-based, focusing on graphing, web scraping, and the development of heuristic algorithms, all with the Python programming language.

### ***Presentations and Visualization Assignments***

Effective visualization of data and communication are required competencies of an analytics professional. These assignments develop those essential skills and involve the development and delivery of PowerPoint presentations.

### ***Book Report***

This book report asks for qualitative answers to questions, which provide some complementary knowledge related to the heuristic algorithms that you will develop.



## Grading Scale

Grades are determined by cumulative average point total as follows:

Letter	Point Range	Percentage Range
A	930 +	93% +
A-	900-929	90-92.9%
B+	870-899	87-89.9%
B	830-869	83-86.9%
B-	790-829	79-82.9%
C+	760-789	76-78.9%
C	730-759	73-75.9%
C-	700-729	70-72.9%
F	699 or less	69.9% or less

## Late Assignment Policy

It is very important that work be turned in on time, or students will find it very difficult to catch up. All work in the course will be due by 11:59 pm ET on the date noted on the course calendar, unless noted otherwise.

Any assignment submitted after the due date will have 10% of the earned points deducted for each day that it is late. Students should reach out to their instructor immediately to discuss any concerns.

## Submitting Assignments

Individually completed assignments should be submitted to the appropriate assignment dropbox in the Learning Management System, unless directed otherwise.

## Citation Expectations

All research work submitted should be properly cited using APA standards. For more information and resources to assist with proper citation style, please refer to the McLeod Business Library at the Mason School [Research Paper Writing and Citing FAQ resources](#).



# PROGRAM POLICIES

## Faculty Communication and Feedback

At the beginning of each course, make sure that you understand the instructor's preferred mode of communication and any specific communication protocol. One of the best ways to be effective as a graduate student is to understand the instructor's expectations and operate within those boundaries. You should give the instructor 24 hours to get back to you on any communication, and one week for grading turnaround time. If you have concerns about communication or feedback, you should always go to the instructor first. You should explain your concern as clearly as possible without judgment or emotion. Effective communication is an important graduate-level skill, and every interaction in your master's program is an opportunity to develop this skill.

## Online Learning Student Expectations

All students in this course are expected to have completed the Online Student Orientation course. Through this orientation, you will learn how to navigate the course and use the various tools that you will need in order to participate effectively and submit assignments. You are also expected to have all the equipment and software needed to be successful in the course.

All students are expected to contribute to their own learning as active and well-prepared participants. Activities in each weekly module generally do not require your "electronic presence" at any particular time or day, so there is no class to "miss." You will have tasks to complete by the end of each week and, possibly, some mid-week deliverables, which you can schedule at your convenience. You should plan to spend the same amount time working on this course as you would if you were taking the course in a face-to-face environment.

### ***Technology Support***

Technical support is available using the "Help" link at left in Canvas. Your instructor will always take technical problems into account if the situation warrants it.

### ***Logging in to the Canvas Learning Management System***

The learning activities for each week are carefully sequenced so that you can accomplish a reasonable amount of work throughout the week. You should log on to the course website regularly to work through course materials and participate in course discussions.

### ***Technology Requirements***

The MSBA program will require the use of many analytics software packages, with R and Python used in multiple courses. Instructions for installing R and Python are provided below. Instructions for other software packages will be included in specific courses that require those software.



The use of a laptop with the Microsoft Windows operating system is mandatory for graduate students at the Raymond A. Mason School of Business at William & Mary. To eliminate possible security and software conflicts, it is highly recommended that your Windows environment be used for Mason coursework only, and not for personal or business purposes. The MSBA faculty have selected the following [laptop available for purchase at this link](#) that meets the computer requirements for the program. You may find it beneficial to have a second monitor to utilize with your laptop.

## ***Posting Responses***

Interaction between students is an important part of this course and requires prompt postings and responses. In an attempt to be efficient with our time and considerate of everyone's schedules—beyond the requirements of this course—we will operate under a consistent time structure for posting assignments and responses to online discussions.

## **Teamwork**

As you advance in your careers, it becomes increasingly important to develop the skill of influencing others and working collaboratively. Similarly, in most workplaces, you will need to collaborate or negotiate with others in order to accomplish goals.

Teamwork in many courses offers an opportunity for you to learn virtual team leadership and team theory. It is important that you treat your team members with the same respect that you would treat coworkers. Team members will become part of your professional network, so if you work effectively with them, they may become a lifetime resource.

Remember that everyone's style of communication is different, and that it is important to listen carefully and adjust your style when necessary to communicate effectively. You should be proactive when you feel there might be a problem in the group. The situation will not improve if you do not address it. If the situation continues, please contact your instructor.

## **Academic Integrity and the Honor Code**

The origin of our Honor Code at William & Mary dates back to 1736 when the college first demonstrated its highest commitment to the character of its students. The Honor Code has evolved along with the university and has gone from being a "gentlemen's code" into a codified student honor system promoting individual responsibility on the part of all who are members of the William & Mary community relating to a student's honor. The same high commitment to student character exists today, and the Honor Code is administered by the student body to help build a community of trust. Upon matriculation at William & Mary, all students are asked to sign the Honor Code, expressing their commitment to not lie, cheat, or steal.

"As a member of the William and Mary community, I pledge on my honor not to lie, cheat, or steal, either in my academic or personal life. I understand that such acts violate the Honor Code and undermine the community of trust, of which we are all stewards."

Upon graduation, the Honor Code becomes the brand with which all William & Mary alumni will be judged.



Honor and integrity are fundamental assets to the Mason School of Business community, and therefore they must be cherished and protected. All too often today, headlines read of business leaders participating in dishonorable and unethical behavior. Our conduct during our time as graduate students and beyond reflects our character, the character of the Mason School of Business, and our university. Therefore, we encourage students to be actively committed to safeguarding the Honor Code's "community of trust of which we are stewards."

## Plagiarism

The following identifies the university policy on plagiarism:

**Plagiarism:** the presentation, with intent to deceive, or with disregard for proper scholarly procedures of a significant scope, of any information, ideas or phrasing of another as if they were one's own without giving appropriate credit to the original source.

- a) One commits plagiarism when one includes the words of another without quotation or when one includes the substantive work of another without properly crediting the source with footnotes, quotation marks, or other appropriate citation.
- b) A student's intent may be inferred based on the extent and context of the improperly cited material and whether the student has provided false citation or has manipulated the original text such that a reasonable person may conclude the student did so in order to avoid detection.
- c) Disregard for proper scholarly procedure that is minimal in scope may be addressed solely as an academic matter, and the instructor may determine whether an academic penalty should be applied without pursuing resolution under the Honor Code. But any intentional acts of plagiarism or disregard for scholarly procedure of a significant scope should be treated as a violation of the Honor Code and addressed under either Sec. VIII or Sec. IX of the Student Handbook.

## Academic Integrity: Categories of Conduct

Academic integrity is an integral component of the William & Mary learning experience, and any breach of this integrity is very serious and not in keeping with the overall intellectual and ethical foundations of our University. Students are expected to adhere to the William & Mary Honor Code and to the general principles of academic honesty. These principles include and incorporate the concept of respect for the intellectual property of others, the expectation that assignments will be submitted according to guidelines specified by the instructor, and that plagiarism of any type is unacceptable.

To clearly delineate acceptable from unacceptable conduct for completing assignments, which are varied in nature due to the varied intended learning outcomes, the Raymond A. Mason School of Business requires that each assignment be identified with the categories below. If there are questions regarding acceptable conduct for a particular assignment, then it is essential that you ask your professor for clarification.





- **Category A** –This is an individual assignment. You may not receive help from anyone on this assignment. It must be 100% your own work. All questions concerning this assignment should be addressed to your professor. It is an honor code offense to give or receive assistance on this assignment.
- **Category B** – This is a group assignment. Your group may not receive help from anyone outside your group. While your group may choose to delegate the work among the group members, everyone in the group is expected to be prepared to discuss the entire assignment in class. All questions concerning this assignment should be addressed to your professor. It is an honor code offense to give help to other groups and individuals or receive assistance from other groups and individuals.
- **Category C** – This is an individual assignment. You may work with others or receive help from a tutor on this assignment. You must, however, turn in your own paper. You may not divide the work with others or copy another student's paper; it is an honor code offense to do so.
- **Category D** – This is a group assignment. You may share information or discuss general concepts and approaches to the assignment with other groups. You may receive help from a tutor. Everyone in the group should be prepared to discuss the entire assignment in class. Each group must turn in their own work. You may not copy another group's work; it is an honor code offense to do so.
- **Category E** – This is a timed assignment. You are given a specific length of time within which the work must be completed. It is an honor code offense to violate this time restriction unless you have received permission from your professor.

## Accessibility Services

William & Mary accommodates students with disabilities in accordance with federal laws and university policy. Any student who feels they may need an accommodation based on the impact of a learning, psychiatric, physical, or chronic health diagnosis should contact Student Accessibility Services (SAS) staff at 757-221-2512 or at [sas@wm.edu](mailto:sas@wm.edu) to determine if accommodations are warranted and to obtain an official letter of accommodation. For more information, please visit the [SAS website](#).