



## INFO 2020: Analytics III: Business Modeling and Analysis

<b><u>Term and Credits:</u></b> Winter 2021, 4 Credits	<b><u>Location:</u></b> <b><u>Tuesdays in Daniels 105 for Section 6 and in Daniels 305 for Section 4 and Zoom;</u></b> <b><u>Thursdays on Zoom only</u></b> Section 4: T/Th 12 – 1:50 PM Mountain Time Section 6: T/Th 10 – 11:50 AM Mountain Time Final Exam: Thursday March 18 <sup>th</sup> during normal class time
<b><u>Instructor:</u></b> Ben Williams, Business Information & Analytics Office Hours: M/W 3 – 5 pm or by appointment Email: benjamin.williams@du.edu	<b><u>Communication:</u></b> You can call me Ben, Prof/Professor Williams, or Dr. Williams  Email and Slack (info below) are best for communication. I will do my best to respond within 24 hours, but will likely be much faster. If you email me over the weekend I may not respond until Monday.  I will post class announcements to both Slack and Canvas.  Please also check Canvas for grades, and assignments

To begin, I want to acknowledge that this quarter will no doubt proceed differently than we were all expecting. I am, however, not worried that you will lose out on any learning. I ask for your patience as we all navigate hybrid learning. I am grateful we live in a time with so much technology that allows us to continue learning in such difficult circumstances.

### **Tools for Hybrid Learning**

1. **Zoom:** We will meet as a class once a week via Zoom, a video conferencing software. To join the class, follow the link under the “Zoom” tab on our class Canvas page. There are 2 class links, one for each section, and an office hours link. During class, please have your video turned on so we can all see each other to make things feel like a classroom environment. You are required to attend these Zoom meetings during class, unless I am told why you cannot attend. Some of you will be on Zoom the entire quarter and the same procedures as above will apply.
2. **Slack:** Slack is a popular messaging tool used widely throughout the business world. During our first class meeting, I will have you download Slack. Slack allows for you to message fellow classmates as a whole, in small groups, as well as myself. It is a great platform for me to send quick announcements and for us to share work during class. Slack will also serve as a discussion/question board and you will be able to connect with your classmates regarding various assignments. It is also great have on your resume.
3. **Canvas:** Please stay up to date on our Canvas page. I will post announcements to Canvas and you can also contact me through Canvas if that works better for you. All of your assignments will be given over Canvas and that is where you will upload your work.

### **Course Description:**

Businesses make decisions and improve processes using a variety of modeling and analytic techniques. This course introduces the student to the techniques of multiple regression analysis, time series analysis, and simulation for solving a variety of business problems. Applications include economic forecasting, supply chain management, and project management. Student projects focus on using spreadsheet modeling for problem solving, and emphasizes written and oral presentation techniques.

### **Prerequisites/Co-Requisites:**

Prerequisites: INFO 1020, degree checkpoint 1 and all MOS certifications.

### **Learning Outcomes, Principal Content Elements:**

1. Business modeling techniques and tools.
2. Business decision support analysis.
3. Business presentation techniques.

### **Program Learning Outcomes:**

1. Ethical Decision-Making - Graduates will recognize and consider the legal and ethical implications of business decisions.
2. Technical Knowledge - Graduates will possess basic knowledge of the functional areas of business and how they integrate to achieve organizational goals.
4. Communication and Interpersonal Effectiveness - Graduates will communicate effectively and have the interpersonal skills necessary to collaborate effectively in a business environment.
5. Critical Thinking - Graduates will apply critical thinking skills to identify and resolve business issues.
6. Global/Intercultural Competence - Graduates will be prepared to meet the challenges and opportunities of intercultural differences that impact business organizations in a global society

### **Student Learning Outcomes:**

1. Construct appropriate quantitative models for a variety of business problems using a spreadsheet environment.
2. Apply quantitative techniques and spreadsheet tools to derive a set of conclusions from these models.
3. Evaluate conclusions and perform what-if analysis to gain insights about the business problem.
4. Analyze and interpret conclusions and insights, and communicate this intelligence to decision makers using appropriate data visualization, reporting, and presentation techniques.
5. Continue to develop the critical thinking and problem solving skills necessary to produce a business decision or recommendation from a data set. Show this development through project submissions.

### **Daniels Areas of Interdisciplinary Strength**

In addition to the description of the specific content of this course, all courses in the Daniels College of Business integrate a range of topics that are embedded in our values about learning and contributing to the welfare of the various communities that we all serve. For these reasons, you may see one or more of the following topics discussed in this course: social, environmental, and ethical issues, public policy, corporate governance, community development, leadership, diversity/gender/culture, negotiations, social entrepreneurship, corporate social responsibility, sustainability/triple bottom line, globalization, innovation, and work/life balance.

### **Required Software:**

Microsoft Excel will be used throughout the core Analytics program. It is the students' responsibility to ensure that their laptops are equipped with the prescribed (or equivalent) software to complete the course requirements. The Microsoft Excel Data Analysis add-in is the minimum statistical analysis capabilities required for this course.

### **Optional Material:**

- Business Analytics 3<sup>rd</sup> Edition; Author: Camm *et al.*; ISBN: 9781337615556; Publisher: Cengage Learning
  - I do not require you to buy this book, but if you learn better by reading a textbook, we will be following the one above. Feel free to use any edition if you choose this route. We will cover chs 7, 8, & 11.

### **GRADING STRUCTURE, SCALE, AND POLICIES:**

A: 100-93%	B+: 89.9-87%	C+: 79.9-77%	D+: 69.9-67%	F: 59.9-0%
A-: 92.9-90%	B: 86.9-83%	C-: 76.9-73%	D: 66.9-63%	
	B-: 82.9-80%	C-: 72.9-70%	D-: 62.9-60%	

## ASSESSMENTS:

ACTIVITY	% of Grade
Homework/In-Class Activities	15
Project 1	25
Project 2	15
Project 3	15
Midterm Exam	15
Final Exam	15
Total	100

## POLICIES, AND RESOURCES:

This course will comply with University of Denver's COVID-19 Protocols for Personal Protective Equipment (PPE) and Social Distancing in accordance with state and local orders and federal guidelines. See [here](#) for the complete policy. It is the expectation that students attending physically shall wear a face covering that:

- Cover the nose and mouth at all times
- Fit snugly but comfortably against the face
- Include multiple layers of fabric
- Allow for breathing without restriction
- Be disposable or be washable and machine dryable without being damaged or changing shape
- Be looped around the ears or tied behind the head and neck
- Remain in place until taken off safely
- Be replaced with one that does not need to be frequently adjusted if the initial face covering moves during work
- Be replaced when they become dirty, wet, and/or difficult to breathe through.

**Students with Disabilities.** A student who qualifies for academic accommodations because of a disability must submit a Faculty Letter to the instructor from the DU Disability Services Program (DSP) in a timely manner, so that the needs of the student can be addressed. Accommodations will not be provided retroactively, e.g., following an exam or after the due date of a project. DSP determines eligibility for accommodations based on documented disabilities. DSP is located in Ruffatto Hall, 1999 E. Evans Ave. (303-871-2278).

**University Expectations.** Please review the University Expectations on the Daniels College of Business syllabus webpage (<http://daniels.du.edu/university-expectations/>)

- University of Denver Honor Code
- Policy Concerning Official Communication
- Students with Disabilities
- Policy Concerning Religious Accommodations
- Policy Concerning Emergency Procedures
- Policy Concerning Conflicts of Interest, Including Gifts from Students
- Course Expectations, Policies, and Resources:

## Policies:



**Attendance/Participation:** Attendance is expected. You will earn credit for participation in in-class activities. There will be no making up these activities if you miss class without a valid reason. If you are missing class due to valid reasons, please contact me.

**Communication:** Please come see me if you are having trouble with the course. If you are having an emergency situation, please let me know so we can work out a plan.

**Technology Use in the Classroom:** You will be required to use your laptop in class each day. The use of technology in the classroom is only to be used for learning purposes. We will often be using our laptops during class, and I ask you to be respectful to your classmates who might be distracted while you are browsing Twitter.

**Canvas** (<https://canvas.du.edu>): Lecture notes, assignments, and grades are posted on the Canvas course site. I may use the course Canvas "Announcements" section to communicate with the class. Please regularly check Canvas for any new information. You should modify your notifications settings in Canvas to be promptly notified of new information.

**Individual/Team Work:** All work in this class is to be done individually unless I state otherwise. You may work together, but be sure each person turns in their own work that they did not simply copy. Just watching someone do the work and replicating it does not count as working together. Any form of cheating will not be tolerated. Turning in individual work done by someone else is academic dishonesty and can result in penalties ranging from a 0 on the assignment, to an "F" in the class and dismissal from the class.

**Extra Credit:** There will be no extra credit given.

**Examinations - schedule and policy:** We will have 2 in class exams in this class, a midterm and final. It is your responsibility to have computers that work for the Excel required portion of the exams. If you do not come to class (or DSP) for your scheduled exams, it will result in a 0 for that exam (excepting for University excused absences, which you must discuss with me ahead of time). The schedule of Exams will be posted in Canvas soon after class starts.

If you are taking an exam with DSP it is your responsibility to schedule with them at least 1 week ahead of time (or they will not accept you). I recommend you schedule all the exams with DSP as soon as possible.

#### **Course Rules/Requirements**

1. Late work will be accepted with a penalty of 15 % per day. I will not accept work turned in after 1 week.
2. Everything must be turned in on Canvas. No exceptions. You may want to start early in case you have a computer failure.
3. Exams are given on the dates provided during class time only. If you need to take an exam early due to a University sponsored activity, prior coordination with me is required. The final exam is required of all students.
4. All assignments have due dates and are due at 11 PM unless otherwise directed. There is a 59 minute grace period.
5. There will be no make-up or extra assignments/quizzes/exams.

**Syllabus Policy:** This syllabus is subject to change based on the needs of the class, and at the discretion of the instructor.



Week	Dates	Topics
1	January 12	Introduction
	January 14	Linear Regression
2	January 19	Linear Regression
	January 21	Linear Regression
3	January 26	Linear Regression
	January 28	Linear Regression
4	February 2	Linear Regression
	February 4	Linear Regression
5	February 9	Project Work Day /Exam Review
	February 11	<b>Midterm Exam</b>
6	February 16	Time Series / Forecasting
	February 18	Project 1 Presentation
7	February 23	Time Series / Forecasting
	February 25	Time Series / Forecasting
8	March 2	Time Series / Forecasting: Case Study
	March 4	Simulation
9	March 9	Simulation
	March 11	Project 3 Presentation
10	March 16	Exam Review
	March 18	<b>Final Exam</b>