Course Outline

AEM 3030 – Explorations in Analytic Modeling

SPRING 2024Fully Online Asynchronous Canvas

1st 7 Weeks January 22,2024 – March 12, 2024

*PLEASE SEE **CA Support Team**, schedule and contact information **on Canvas***

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Zoom OH Wed on call (email me for appt.)

Course Rationale

The use of spreadsheet modeling for data and text analytics in business continues to transform how business decisions are made. Data collection, structuring, modeling and analysis have become omnipresent in the life of most business professionals seeking to make efficient and expeditious decisions on a daily basis. The process used to gather, manage, and analyze data to be transformed into information that creates business knowledge serves to maximize competitive opportunities. Interactions with business professionals, Dyson students and alumni indicate the critical role such skills have in reaching successful career and business goals. Based on this research, is it also evident that presenting the results and outcomes of the analytics process to many different audiences may be the grander challenge requiring emphasis on “data” presentation and communication skills.

Course Description

Explorations in Analytic Modeling is a fully online course offering a deeper exploration of model-based approaches to quantitative decision making within a spreadsheet platform. Applied decision-making primarily using Microsoft Excel as a business analytics tool will focus on performing descriptive, predictive and prescriptive analytics while addressing a wide range of business cases. Emphasis will be placed on exploration that enhances decision making to improve outcomes. This data-driven course will move the student from intro to the most complex functionality available in the

Excel platform. Key topics will include data integrity, data management, visual analytics, text analytics, financial modeling, forecasting, optimization, pivot tables, simulation and dashboard design. The course spans industries and verticals as we explore reasoning with data to address problems in business enterprises leading to optimal managerial decision-making, effective communication of recommendations and an understanding the world of business analytics.

Course Objectives

- Design spreadsheet models for a breadth of business situations and problems
- Review and reinforce the ability to conceptualize, design and communicate spreadsheet models and results.
- Evaluate and understand the concept of data integrity and ethics associated with proprietary data
- Manipulate large datasets and explore data management and cleansing
- Reinforce analytical business skills by apply spreadsheet modeling analysis and decision making to different industries in business.
- Apply logic when making business decisions to solve real world business problems
- Become skilled consumers of business data, information and knowledge.
- Demonstrate effective and efficient data display with charts and tables through model design and experimentation
- Explore text and visual analytics methodologies using Excel
- Infer and predict outcomes using forecasting and trending with financial impact analysis
- Expand into more complex decision making using multivariable scenarios
- Create, record Macros and become familiar with VBA language syntax.

Course Format

In the spirit of research, learning and outreach, this course is designed to allow students autonomy to affect one's own grade. The course is fully online with no synchronous meetings. Units will follow a similar weekly format with assigned work due on Canvas. Most Units have three modules. Working collaboratively does not mean giving answers, but rather aiding others in understanding and learning the mechanics and applications of the tools we will be working with. The culture in this course is meant to embody Cornell's values of excellence, diversity, inclusion, openness, and engagement. Course text pages and videos will comprise lecture and demonstration tutorials including required discussion board participation. **All course content is available now on Canvas including all videos and work with due dates.**

Students are expected to prepare by completing course units in Canvas. Course participation is very important. Mechanics will be reviewed, questions and approach discussed regarding related content.

The course work is done independently. Students are expected to take an active role in completing the work on time. Any work submitted late will have eleven percent deducted for late submission and then points will be deducted during grading if there are errors. It is not advisable to make a habit of late submissions, as it will adversely affect your course average.

This is an advanced course in spreadsheets, thus, the structure is reduced and complexity increased, leaving students to apply critical thinking to the exercises. The course projects are also presented with requirements, but unstructured, leaving individuals or teams to work together in applying what has been learned.

Preparedness to take AEM 3030

AEM 2010/2011 is a prerequisite to this course. Students who enter this course have a strong grasp of Microsoft Excel. More than 85% of businesses are PC based today. The course will align with this format to prepare students (even MAC users) for careers in analytics.

MAC USERS

Management of MAC conversion issues is the student's responsibility. For best learning outcomes, students should be running PC version of MS Office no matter what type of computer is owned. Technology issues related to conversion are not an exception for late work or lost points. Menus are very different on a MAC. If you choose to use a MAC, you assume all issues/problems related to not conforming to the PC platform for the course. Please do not ask for accommodation. The videos are created on a PC. You are not exempt from completing work just because the menu does not appear on a MAC. Please use Cornell Computer labs if this is an issue.

Each Unit with three modules consists of content reading pages, videos, discussions and a project (Excel case) for students to complete. The main topics covered in Microsoft Excel are:

Grading System

- Canvas Assignments 30% Online (Action plans, project files)
- Exam 55% Online
- Discussions 15% Online (Discussion – start 1 comment on 1)

Student Responsibilities

- Follow course policies
- Complete all course requirements
- Submit all assignments on time

- Review all module videos online
- Seek extra help when needed and manage your own grade
- Apply asap to Cornell SDS if you think you need accommodation

Professor and TA Responsibilities

- Communicate Course Policies
- Maintain course objectives, policies, and schedules
- Inform and discuss with students any changes in the course
- Be available for students
- Make reasonable accommodations for students per Cornell

Academic Integrity

Absolute integrity is expected of every Cornell student in all academic undertakings. Integrity entails a firm adherence to a set of values, and the values most essential to an academic community are grounded on the concept of honesty with respect to the intellectual efforts of oneself and others. Academic integrity is expected not only in formal coursework situations, but in all University relationships and interactions connected to the educational process, including the use of University resources. While both students and faculty of Cornell assume the responsibility of maintaining and furthering these values, this document is concerned specifically with the conduct of students.

A Cornell student's submission of work for academic credit indicates that the work is the student's own. All outside assistance should be acknowledged, and the student's academic position truthfully reported at all times. In addition, Cornell students have a right to expect academic integrity from each of their peers.

Please see guidelines in detail here: **https://theuniversityfaculty.cornell.edu/academic-integrity/code-of-academic-integrity/ (https://theuniversityfaculty.cornell.edu/academic-integrity/code-of-academic-integrity/)**

There is a thin boundary between collaboration, allowed and stimulated, in this class and plagiarism. Remember that whenever you turn in your work, you are signing it with your name. This certifies that you are the author of the submitted work and I assume that it is an expression of your original ideas (and effort). Even if you have discussed your work with others, you should not have copied it or let others copy your work.

This includes emailing prepared Excel or other files to classmates to use as a guide or showing them on your screen to be copied. Sending files to help a friend is as much a violation as saving the file and submitting it as your own. It is also a violation to take photos of another student's computer screen work. Please know that if either occurs both parties will be charged as per Cornell's policies.

Any breach of the academic integrity code listed in the college handbook will be considered grounds for failure in the course. A primary hearing will be held and a letter put in your record in Student Services.

Students with Disabilities

Pursuant to Cornell University policy and equal access law, students who may need accommodation are encouraged to register with Student Disability Services to verify their eligibility within the first three weeks of the semester in order for arrangements to be made that will provide appropriate academic accommodations required.

We recognize the historical and systemic disparities that exist within our healthcare systems and society at large. These disparities can often have adverse and unintended consequences that further marginalize populations. We recognize these disparities exist among our student population, and can directly affect a student's ability to provide documentation of a disability. We are committed to working with every student to find appropriate and creative ways of ensuring access in every aspect of their Cornell experience. Please see guiding principles in detail here: **https://sds.cornell.edu/about/guiding-principles (https://sds.cornell.edu/about/guiding-principles)**

Diversity and Inclusion

Belonging at Cornell is about fostering respect and appreciation for difference, having a shared purpose and being a part of a community, while simultaneously being valued and appreciated for the uniqueness that each person brings to the community. Please see details on Belonging at Cornell here: **https://diversity.cornell.edu/belonging (https://diversity.cornell.edu/belonging)** . ***"Any Person, Any Study."*** - Ezra Cornell and Andrew Dickson White, on Cornell's founding mission.

Cornell University is a place where intercultural skills are developed and used, everywhere: throughout our diverse campus groups, with our community partners, within our classrooms and in our workplaces. At Cornell, we recognize people with diverse backgrounds and experiences bring great value to education, discovery, creativity, and engagement which is reflected in **our long history of diversity and inclusion. (https://diversity.cornell.edu/about-us/our-historic-commitment)**

Course Assignment Schedule (Text Version Below table)

Unit	Begin	CONTENT COVERED	Assignments
1	**01/22-01/29**	Read All Canvas Course Pages Begin Canvas Unit 1	Complete Unit 1 All assigned work in Unit due by 01/29

2	**01/30-02/05**	Begin Canvas Unit 2	Complete Unit 2 All assigned work in Unit due by 02/05
3	**02/06-02/12**	Begin Canvas Unit 3	Complete Unit 3 All assigned work in Unit due by 02/12
4	**02/13-02/19**	Begin Canvas Unit 4	Complete Unit 4 All assigned work in Unit due by 02/19
5	**02/20-03/01**	Begin Canvas Unit 5	Complete Unit 5 All assigned work in Unit due by 03/01
6	**03/02-03/08**	Begin Canvas Unit 6	Complete Unit 6 All assigned work in Unit due by 03/08
7	**03/12**	***EXAM DUE***	***EXAM DUE 03/12***

TEXT SCHEDULE

Unit Begin CONTENT COVERED Assignments

1 01/22-01/29 Read All Canvas Course Pages

Begin Canvas Unit 1 Complete Unit 1

All assigned work in Unit due by 01/29

2 01/30-02/05 Begin Canvas Unit 2 Complete Unit 2

All assigned work in Unit due by 02/05

3 02/06-02/12 Begin Canvas Unit 3 Complete Unit 3

All assigned work in Unit due by 02/12

4 02/13-02/19 Begin Canvas Unit 4 Complete Unit 4

All assigned work in Unit due by 02/19

5 02/20-03/01 Begin Canvas Unit 5 Complete Unit 5

All assigned work in Unit due by 03/01

6 03/02-03/08 Begin Canvas Unit 6 Complete Unit 6

All assigned work in Unit due by 03/08

7 03/12 EXAM DUE EXAM DUE 03/12