Analytics is the scientific process of transforming data into insights for making better decisions. This course introduces students to all three areas of business analytics: descriptive, predictive, and prescriptive. Emphasis is placed upon developing students' abilities to recognize the need for analytics, formulating business problems, selecting, and testing analytics models, and interpreting the implications of results.

Prerequisites
Prerequisites: BUS 195 (C or higher grade, or test-out option) or BUS 241 (C- or higher grade), MAT 108 (C- or higher grade), and MAT 210 (C- or higher grade) or another approved statistics course (see http://usm.maine.edu/school-of-business/stats for approved courses). Non-School of Business students please see enrollment policy for eligibility.
Course Materials & Books

You will need a Cengage access code to access MindTap and other online materials for the textbook. In addition to the online adaptive learning modules, the code also provides access to an online copy of the textbook. Homework assignments and quizzes will be posted on MindTap. Details pertaining to the different options available to you to buy the textbook and/or the code can be found in the document located in the “How to access Cengage MindTap course for BUS 301 module”.

Course Description
Business decision-making relies on quantitative techniques involving statistics. For example, being able to forecast demand based on historical information helps organizations decide how much inventory or stock to keep for a given product at a given location. When forecasts end up being accurate, it can help reduce costs and improve the responsiveness of a firm to its customers. The course builds on BUS 195/ MAT 108/ MAT 210 and covers advanced models such as correlation, simple and multiple regression analysis, time series analysis, and forecasting, and optimization models. The course aims to provide students a working knowledge of these techniques along with an understanding of the implications of each step involved and on the business decision. This course is online and requires access to both Bright Space and the Cengage MindTap learning management system.

Potential Learning Outcomes
Students will learn why business analytics matters and its relevance to organizations. Upon successful completion of this course, students will be able to:

- Describe and explain the importance of business analytics and its applications in the business world
- Develop skills to quantitatively, and qualitatively describe data and prepare a roadmap for its analysis
- Utilize data to develop predictive analytical models
- Develop and utilize analytical tools that can be applied in business contexts

Technology Requirements
You will need access to Bright Space, a computer with Microsoft Excel and additional excel add-ins (Analysis and Solver add-in) loaded to carry out the required analysis. Online versions have limited support for the analysis and solver add-ins required for multiple regression and linear optimization, respectively. An internet browser will be required on the computer to access Cengage MindTap. Bright Space will be used as the learning management system where discussion questions, and group assignments will be posted in addition to any updates/announcements regarding classes, assignments, evaluations etc. Cengage MindTap will be used for homework assignments, e-textbook access, tutorial videos, activities, and adaptive learning.

Stationary Requirements
A spare notebook, pens/pencils, calculators are extremely handy when taking notes and solving problems at home.
### Schedule

<table>
<thead>
<tr>
<th>Date (Year: 2022)</th>
<th>Topic</th>
<th>Weekly Discussion Question</th>
<th>Assignment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Week 1 (Week of 17 January)</td>
<td>Chapter 1 (Revision of MAT 210)</td>
<td>W1 DQ due 24th January</td>
<td>HW1 due 26th January on Cengage MindTap</td>
</tr>
<tr>
<td>Week 2 (Week of 24 January)</td>
<td>Chapter 2 (Revision of MAT 210)</td>
<td>W2 DQ due 31st January on BS</td>
<td>HW2 due 2nd February on Cengage MindTap</td>
</tr>
<tr>
<td>Week 3 (Week of 31 January)</td>
<td>Chapter 3 (Revision of MAT 210)</td>
<td>W3 DQ due 7th February on BS</td>
<td>HW3 due 9th February on Cengage MindTap</td>
</tr>
<tr>
<td>Week 4 (Week of 7 February)</td>
<td>Chapter 6 (Revision of MAT 210) and Review</td>
<td>W5 DQ due 21st February on BS</td>
<td>Q1 9th February during class time</td>
</tr>
<tr>
<td>Week 5 (Week of 14 February)</td>
<td>Chapter 7 Regression</td>
<td>W6 DQ due 28th February on BS</td>
<td></td>
</tr>
<tr>
<td>Week 6 (Week of 21 February)</td>
<td>Chapter 7 Regression, Presidents Day, No Classes Feb 21</td>
<td>W7 DQ due 7th March on BS</td>
<td>HW4 due 9th March on BS</td>
</tr>
<tr>
<td>Week 7 (Week of 28 February)</td>
<td>Chapter 7 Regression</td>
<td>W8 DQ due 14th March on BS</td>
<td>AC1 due 28 February in BS</td>
</tr>
<tr>
<td>Week 8 (Week of 7 March)</td>
<td>Chapter 8 Forecasting and Time Series</td>
<td>W11 DQ due 4th April on BS</td>
<td>HW5 due 6th April on Cengage MindTap</td>
</tr>
<tr>
<td>Week 9 (Week of 14 March)</td>
<td>Spring Break, No classes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Week 10 (Week of 21 March)</td>
<td>Chapter 8 Forecasting and Time Series</td>
<td>W12 DQ due 11th April on BS</td>
<td>Q2 6th April during class time</td>
</tr>
<tr>
<td>Week 11 (Week of 28 March)</td>
<td>Chapter 12 Linear Programming</td>
<td>W13 DQ due 18th April on BS</td>
<td></td>
</tr>
<tr>
<td>Week 12 (Week of 4 April)</td>
<td>Chapter 12 Linear Programming</td>
<td>W14 DQ due 25th April on BS</td>
<td>HW6 due 27th April on Cengage MindTap</td>
</tr>
<tr>
<td>Week 13 (Week of 11 April)</td>
<td>Chapter 12 Linear Programming</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Week 14 (Week of 18 April)</td>
<td>Chapter 12 Linear Programming</td>
<td></td>
<td>AC2 due 29 April on BS</td>
</tr>
<tr>
<td>Week 15 (Week of 25 April)</td>
<td>Chapter 12 Linear Programming</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Week 16 (Week of 2 May)</td>
<td>Exam Week</td>
<td></td>
<td>Q3 4th May 5-7 PM, PS 303</td>
</tr>
</tbody>
</table>

Disclaimer: The instructor reserves the right to amend, adjust, or otherwise modify this course outline/syllabus at any time during the course. The students should check the course site on Bright Space often since it is the ultimate version and overrides any other versions, revisions, etc. It is each student's sole responsibility to keep abreast of any changes to the course webpage.
Assignments

1. Graded Homework assignments on MindTap
There will be six homework assignments- assigned online by the instructor on MindTap. The due dates of the homework assignments are as per the syllabus. As they form a large section of the course grade, being registered on MindTap is a must. These homework assignments will be submitted within MindTap itself. These homework assignments will be due at 11.59 pm on the slated due date. Each of the homework assignments will test the content knowledge of the topics covered prior to the Homework assignment. Students will find these assignments as useful avenues to practice and improve on their analytical skills and logic.

2. Application cases
This assignment is a group activity. Cases involving the use of Microsoft Excel to analyze business data will be assigned. You will need to submit the excel sheet that contains the workings of your case on Bright Space in addition to a brief Microsoft Word report describing your workings and results. The application cases will not only be graded on the correctness of the final answer, but also on the explanation provided by students with respect to the different decisions that they took to arrive at the answer. These cases are aimed to illustrate the use of the analytical tools learnt in the class for day-to-day business activities. Individual rubrics will be provided with each assignment. Only MS Excel and MS Word files will be accepted. Please reformat into these formats before submitting your response.

3. Quizzes
There will be three quizzes. All quizzes are mandatory (first, second and third) and will be carried out on the dates mentioned in the syllabus. Each of the quizzes will cover different aspects of the learning outcomes. The course for each of the quizzes will be the material covered after the prior quiz. However, due to inevitable overlaps in the concepts being covered, questions relating to prior material may accidentally sneak into the quiz.

4. Weekly Discussion Question
Weekly discussion questions are 1-2 questions that will be posted to all students on the discussion board. You will need to respond to each of the prompts in 4-5 lines based on your understanding of the materials from the previous week(s). The weekly discussion question submissions will also be used as attendance for that week. Responses that do not reflect an understanding of the material covered will not receive credit. Only MS Excel and MS Word files will be accepted if you plan to upload files. Please reformat into these formats before submitting your response.

It is a USM academic policy that no tests or quizzes may be scheduled during the last week of classes.
Assessment

Student performance in the seminar will be assessed using various graded items as shown in the table below.

<table>
<thead>
<tr>
<th>Graded Item</th>
<th>(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 Graded Homework Assignments (5 points each)</td>
<td>30</td>
</tr>
<tr>
<td>2 Application Cases (5 points each)</td>
<td>10</td>
</tr>
<tr>
<td>3 Quizzes (15 points each)</td>
<td>45</td>
</tr>
<tr>
<td>Weekly discussion questions</td>
<td>15</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

If for any reason, the points associated with the graded item deviate from the allocation above, the student’s score will be rescaled to ensure the point allocation is maintained as per the table. Students are advised to scale their scores using the table as a reference to determine their performance.

Grading Criteria
The letter grades that will be assigned tentatively based on the current criteria is as follows:

- 100-93% = A
- 92-90% = A-
- 89-87% = B+
- 86-83% = B
- 82-80% = B-
- 79-77% = C+
- 76-73% = C
- 72-70% = C-
- 69-60% = D
- 60% or lower = F

There will be no makeup assignments so up-to-date reading and weekly follow-ups are encouraged.
Course Evaluations
At the end of each semester every student can provide constructive feedback on the course. It is important to me that you take the time to let me know your thoughts about the course. I use your feedback to make improvements in the course materials, assignments, and outcomes.

Course Policies

Attendance Policy
Your attendance for this course is based on the weekly submissions of the weekly discussion question posted on the discussion board. It is suggested that you check for updates and announcements on Bright Space daily. You are responsible for checking announcements and keeping track of due dates. I would highly suggest creating a google calendar reminders for any assignments and other submissions.

Late or Missed Work
All assignments must be turned in on time to receive full credit. Assignments that are submitted past their due date and time or in incorrect format, corrupt files, or otherwise inaccessible to the instructor, will only be accepted for full credit in the following specific situations:

“Acceptable Excuses”
1) Accompanied by a doctor’s note verifying an illness that created an inability to complete the assignment.
2) Unique and unusual circumstances such as death in the family. Please consult with the instructor to determine acceptable documentation.
3) A note from an IT technician from the Technology Support Center verifying specific technological difficulties that directly prevented you from submitting an assignment on time (note that this is not a guarantee of acceptance, as computers are available for student use in the library and numerous other locations on campus).
4) Prior arrangement with the instructor at least one class period in advance for conflicts such as religious holidays or job interviews that overlap with submissions. This arrangement must be confirmed; sending an email with no follow-up is not sufficient.
5) Late work submitted WITH documentation of an “acceptable excuse” will be accepted for up to 7 days after the original deadline.

Any work submitted WITHOUT this documentation after the assigned due date will be accepted for up to half credit (maximum of 50% of the possible total points) up to seven consecutive days after the deadline. Any assignments turned in more than seven days past their deadline will not be accepted.

Class Cancellation
In the event that classes/ submissions are to be cancelled or delayed, a notification of the same will be posted on Bright Space and/or an email will be sent to the class. Efforts will be made to ensure at least a day’s notice is provided. However, if the cause of cancellation is an unforeseen circumstance, the time frame maybe drastically reduced.
Attendance Policy: Inclement Weather
From time to time USM will close the University due to inclement weather. When the cancellation is for an entire day, the class content will be made up at another time or through additional, outside of class, assignments.

When the school opens late or closes early, and the time selected is during the middle of class, we will still hold the class unless you are otherwise notified by me. Two examples:

- If class starts at 1pm, but the University is closing at 1:30pm, we will still have class unless you hear from me.
- If class starts at 1pm, but the University is opening at 1:30pm, we will still have class unless you hear from me.

Technology

Technology Support Center (Help Desk)
If you need technical support at any time during the course (especially concerning Bright Space), please contact the Technology Support Center:
Phone: 207-780-4029 or 1-800-696-4357 Email: help@maine.edu

- You need a maine.edu account to access most of our online resources. If you can’t remember your account information, visit the UMS User Account Management website or contact IT at 1-800-696-4357 and ask them to help you access your maine.edu account.
- The USM Portal can be used to reach your student email, Brightspace, MaineStreet and most other university online tools through a single website.
- If this is the first time you’ve used Brightspace, Check out USM’s Student Brightspace Training

Computer Access
Participants will need a reliable PC or a Mac with the latest version of a web browser. In addition, you will need a broadband Internet connection (DSL or faster). Below is a suggested list of recommended software you may need to access electronic resources for this course.

Latest Versions of Web Browsers
- Mozilla Firefox (Windows / MacOS) - Recommend
- Google Chrome (Windows/MacOS) - Recommended
- Safari (MacOS - Update through the App Store)

Note that Bright Space and many other web-based applications used in USM courses do not work well in Microsoft’s browser, Edge.

Brightspace Technical Requirements
D2L recommends having the latest version of whatever browser is being used on any computer or mobile device. Brightspace works very well on mobile Apple and Android devices via web browser. The Brightspace Pulse app in the Apple App Store and Google Play also allows you to receive notifications regarding your courses on your device.
The Pulse app is primarily meant for students to receive course announcements, and updates via push notifications on their mobile devices. The Pulse app is not “Brightspace for mobile devices.” The Brightspace site (courses.maine.edu) itself is mobile friendly. The full content for a course can be accessed by tapping the menu button in the upper-right corner of the Pulse app screen, and selecting “Launch Course Homepage.” This will take you directly to the full course on Brightspace in your device’s web browser.

Netiquette
Our text-based communication is vital in this course since it is the primary - and possibly only - way we will connect with each other. Please be careful and considerate in all your communications with each other and your instructor. The online medium is poor at conveying tone. Consider what you are saying and remember that your intent might not be inferred by your readers (fellow students and instructors). Take a moment to re-read everything you write: assume that it will be taken in the worst possible light. And extend courtesy to others: assume the most charitable light possible. Both steps will make communication easier and far more civil.

Student Data Retention
Your maine.edu account is issued to you for as long as you are a student of this or any other University of Maine System campus. There are various limits on how long IT can retain data you have stored through this account depending on which services you have used. Below are the major points, but we encourage you to visit the UMS User Account Management website for full details on maine.edu account policies.

Assignments and other work stored in Bright Space
Do NOT leave important academic work in old Bright Space courses. Each semester, all courses receive a fresh Bright Space page commonly referred to as a “shell.” Course shells older than two years are automatically purged from the system, but sometimes instructors remove old course shells manually on their own. It is strongly recommended that you make backups of any work you have submitted to Bright Space before or shortly after your course ends. Especially if your program requires you to maintain a portfolio of work you have done.

Google Products
Your maine.edu account is also a fully functional Google Account with access to Gmail, Google Drive, and most of Google’s other products. After leaving the university, either through graduation or simply not registering for courses, credit-earning students have 5 years before their maine.edu account is removed. The limit is 2 years for non-credit students. This includes files and email stored in Google’s products using your maine.edu account. If this data is important to you, or if you need to retain it for a portfolio or future certification, you must make and maintain your own personal backups of these files. Consider using Google Takeout (takeout.google.com) to backup this data prior to separating from the University.

Box & Others
If you are using Box through your maine.edu account, please be aware that your storage can only be maintained for one year after you have graduated, or otherwise separated from the university.
Academic Integrity / Plagiarism
Everyone associated with the University of Southern Maine is expected to adhere to the principles of academic integrity central to the academic function of the University. Any breach of academic integrity represents a serious offense. Each student has a responsibility to know the standards of conduct and expectations of academic integrity that apply to academic tasks. Violations of academic integrity include any actions that attempt to promote or enhance the academic standing of any student by dishonest means. Cheating on an examination, stealing the words or ideas of another (i.e., plagiarism), making statements known to be false or misleading, falsifying the results of one’s research, improperly using library materials or computer files, or altering or forging academic records are examples of violations of this policy which are contrary to the academic purposes for which the University exists. Acts that violate academic integrity disrupt the educational process and are not acceptable.

Evidence of a violation of the academic integrity policy will normally result in disciplinary action. A copy of the complete policy may be obtained from the office of Community Standards and Mediation, online at usm.maine.edu/community-standards-mediation/academic-integrity or by calling and requesting a copy at (207) 780-5242.

Final quiz
The final quiz will be held in person on 4th May 5-7 PM in Payson Smith 303.

Other Issues
If you are encountering difficulties, academic or otherwise, that are negatively impacting your performance in this class, please speak with me AS SOON AS POSSIBLE—I can only help you if I know there is a problem, and the earlier I know this, the better. Please note that I am by federal law, considered a mandated reporter when it comes to experiences of interpersonal violence (sexual assault, sexual harassment, dating or domestic violence, and stalking). Please refer to the Title IX statement for more information and options available to you.

University Policies and Resources

ADA & Electronic Accessibility Notification & Accommodations
The university is committed to providing students with documented disabilities equal access to all university programs and services. If you think you have a disability and would like to request accommodations, you must register with the Disability Services Center. Timely notification is essential. The Disability Services Center can be reached by calling (207) 780-4706 or by email at dsc-usm@maine.edu. If you have already received a faculty accommodation letter from the Disability Services Center, please provide me with that information as soon as possible. Please make a private appointment so that we can review your accommodations.
The following is a list of accessibility resources for the software we use in this course:

- Brightspace Accessibility information
- Google Suite Accessibility information

**Tutoring and Writing Assistance**

Tutoring at USM is for all students, not just those who are struggling. Tutoring provides active feedback and practice, and is available for writing, math, and many more subjects. Walk-in tutoring is available at the Glickman Library in Portland, the Gorham Library, and the LAC Writing Center. For best service, we recommend making an appointment at https://usm.maine.edu/learningcommons/schedule-tutoring-appointment. Questions about tutoring should be directed to Naamah Jarnot at 207-780-4554. Interested in becoming a more effective, efficient learner? Check out https://usm.maine.edu/agile!

**Counseling**

Counseling is available at USM. The best way to schedule an appointment is by phone at 780-5411. More information is available at https://usm.maine.edu/uhcs.

**Recovery Oriented Campus Center (ROCC)**

A peer support community for students in recovery from substance abuse and other mental health conditions is available at USM. More information may be found online at the Recovery Oriented Campus Center website or by contacting ROCC at (207) 228-8141.

**Nondiscrimination Policy And Bias Reporting**

The University of Southern Maine is an EEO/AA employer, and does not discriminate on the grounds of race, color, religion, sex, sexual orientation, transgender status, gender expression, national origin, citizenship status, age, disability, genetic information or veteran’s status in employment, education, and all other programs and activities. The following person has been designated to handle inquiries regarding non-discrimination policies: Amie Parker, Interim Director of Equal Opportunity, The Farmhouse, University of Maine Augusta, Augusta, ME 04333, 207.581.1226, TTY 711 (Maine Relay System). Incidents of discrimination or bias at USM should be reported to Associate Vice President for Student Affairs David Roussel at 207-780-5242.

**Statement on Religious Observance for USM Students**

Absence for Religious Holy Days: The University of Southern Maine respects the religious beliefs of all members of the community, affirms their rights to observe significant religious holy days, and will make reasonable accommodations, upon request, for such observances. If a student’s religious observance conflicts with the academic experience, they should inform their instructor(s) of the class or other school functions that will be affected. It is the student’s responsibility to make the necessary arrangements mutually agreed upon with the instructor(s).

**Title IX Statement**

The University of Southern Maine is committed to making our campuses safer places for students. Because of this commitment, and our federal obligations, faculty and other employees are considered mandated reporters when it comes to experiences of interpersonal violence (sexual assault, sexual harassment, dating or domestic violence, and stalking). Disclosures of interpersonal violence must be passed along to the University’s Deputy Title IX Coordinator who can help provide
support and academic remedies for students who have been impacted. More information can be found online at [http://usm.maine.edu/campus-safety-project](http://usm.maine.edu/campus-safety-project) or by contacting Sarah E. Holmes at usm.TitleIX@maine.edu or 207-780-5767.

If students want to speak with someone confidentially, the following resources are available on and off campus: University Counseling Services (207-780-4050); 24 Hour Sexual Assault Hotline (1-800-871-7741); 24 Hour Domestic Violence Hotline (1-866-834-4357).

**Policy on Acceptable Conduct in Class Settings**
If a student substantially disrupts a class, the professor may ask the student to align with this policy on conduct in a class setting. If the student refuses, the professor may, at their discretion, ask the student to leave. If the professor takes this step, they must attempt to communicate with the student and provide informal counsel and advice. The professor may elect to notify their dean of the situation as well. If the student disrupts the class again, the professor may, at their discretion, provide a written notification to the student, describe the offending behavior, and refer the student’s case to the appropriate academic dean and notify the dean of students that an official student conduct code violation has occurred [https://usm.maine.edu/community-standards-mediation/conduct-process](https://usm.maine.edu/community-standards-mediation/conduct-process).

**COVID Face Covering Requirement**
Per USM and the University of Maine System, all students, faculty, and staff members are required to wear a face covering, including during all face-to-face classes. Resident students are exempted from this requirement when in their own room in the residence hall. Students seeking additional exceptions from this requirement should refer to the DISABILITY ACCOMMODATIONS section of this syllabus. [https://www.maine.edu/together/community-guidance/everyone/](https://www.maine.edu/together/community-guidance/everyone/)