**BA in Management Program   
Spring 2024**

**MGMT203– Introduction to Data Analysis and Research in Business**

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**Office Hours:** By appointment

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| --- | --- | --- | --- |
| **Type** | **Time** | **Days** | **Where** |
| Class | 13:40-15:30 | Tuesday | FENSL045 |
| Class | 11:40 - 12:30 | Wednesday | FENSL045 |
| RecitationA1 | 17:40- 18:30 | Thursday | G060 |
| RecitationA2 | 17:40- 18:30 | Thursday | L018 |

**Course Objective:**

* To introduce the students to functional areas of management and decision analysis
* To improve the computer skills of the students.
* To improve the presentation and teamwork skills of students

**Learning Outcomes:**Upon successful completion of the course, a student should be able to:

1. Perform advanced data analysis and processing
2. Perform an introductory level of regression
3. Perform an introductory level of optimization
4. Use Microsoft Excel, DADM-Tools, and StatTool add-ins.
5. Prepare, present, and discuss as a team the cases related to the subjects studied

Upon successful completion of the course, the student should be able to have:

**Knowledge Content:**

* Exploring Data
* Introduction to Probability, central limit theorem, Normal distribution
* Introduction to confidence interval estimation, hypothesis testing and t-tests, ANOVA, Chi-square, regression

**Skills Content:**

* Simple database functionality of MS Excel, DADM-Tools and StatTool Add-ins
* Effective presentation skills and case discussions
* Teamwork

**Course Material:**

**Main Books:**

* Albright, S.C., Winston, W.l. (2020), Business Analytics: Data Analytics and Decision Making”, 7th ed., Centage Learning, Australia

**OR**

* Albright, S.C., Winston, W.l. (2017), “Business Analytics: Data Analytics and Decision Making”, 6th ed., Centage Learning, Australia

**(Please get the main course book as early as possible )**

**Supplemental Books**

* Shmueli, G., Patel, N.R., Bruce, P.C. (2016),” Data Mining for Business Intelligence”, Wiley, 3rd Edition, New Jersey
* James, G. , Witten, D., Hastie, T., Tibshirani, R. (2013), An Introduction to Statistical Learning, with Applications in R, Springer, New York,
* Bertsimas, D., O’Hair, A., Pulleyblank, W. (2016), “The Analytics Edge”, Dynamic Ideas
* Winston, W.l., Albright, S.C. (2016), “Practical Management Science”, Centage Learning, Australia
* B. W. Taylor III ( 2016), “Introduction to Management Sciences (12th ed.)”, Pearson, Boston, ISBN-13: 978-0133778847

**Reading materials: -**

**List of Cases**

**Module 1-** MBA Starting Salaries

**Module 2-** Fantasy Players

**Module 3**-Compass Maritime

The link for the cases is given below

<https://hbsp.harvard.edu/import/1140554>

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| **Cases of Module 1** | **Date:** | **Presentation of Randomly Selected Teams & Discussion and Answers to the questions prepared by the best-performing team-March 26** |
| Cases:  Type:  Subject:  Teamwork?: Grading: | | Paper  Module 1  Yes  Individual and Team |
| **Case of Module 2** | **Date:** | **Presentation of Randomly Selected Teams & Discussion and Answers to the questions prepared by the best-performing team- April 30** |
| Case:  Type:  Subject:  Teamwork:  Grading: | | Paper  Module 2  Yes  Individual and Team |
| **Case of Module 3** | **Date:** | **Presentation of Randomly Selected Team & Discussion and Answers to the questions prepared by the best performing team: May 21** |
| Case:  Type:  Subject:  Teamwork:  Grading: | | Paper  Module 3  Yes  Individual and Team |

**Optional Reading Material:**

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**Course Web:**

Students are expected to check the website every week as the partial lecture note slides will be posted here, as well as the assignments.

**Sabanci University uses a very powerful web-based tool called Turnitin. Turnitin is the worldwide standard in online plagiarism prevention. It allows instructors to compare student papers against a database composed of millions of articles. Every paper you submit will be scanned by Turnitin, and results will be reflected in your grades.**

**Instructional Design:**

Three important modules run through the lecture:

* + **Module 1**: Exploring Data
    - Introduction to Business Analytics, Describing the distribution of a variable,
    - Finding Relationships among variables, Business Intelligence Tools for Data Analysis (chapters 1,2,3)
  + **Module 2:** Introduction to Probability
    - Probability, probability distributions,(chapter 4) , Normal distribution, Binomial distribution, Exponential Distribution,(chapter 5)
    - Statistical Inference, Sampling (selected parts of Chapter 7): Confidence Interval Estimation(chapter 8), Hypothesis Testing (Chapter 9)
  + **Module 3:** Regression Analysis
    - Estimating relationships(chapter 10),
    - Statistical Inference(chapter 11)

**Instructional Design:**

**For each module**,

The instructor will teach for at least three weeks using lecture note slides and supplementary materials.

The week following this theoretical part, ***the teams of at most 5 students*** will prepare:

A PowerPoint presentation of 30-45 slides per case

The students will select their team and may change their team from one module analysis to the other (You can change your team from one module to the next, although this is not obligatory)

The presentations will be submitted one week before the date of presentation, and the best-performing team for the case discussions will be selected separately both by the votes of the students (weight 40%) and of the instructor (weight (60%) 4 days before the presentation date (i.e., Friday until 5 p.m.).

The **team that performs the best in discussing and synthesizing a case** will have to prepare the questions to be discussed during the case presentation.

The instructor will randomly select the team presenting cases related to the module before the presentation date.

**All teams are expected to be present on the presentation date.**

**All team members of the selected team should be present at the presentation date; otherwise, the grade of the team member who did not make a presentation will be zero.**

Once selected randomly for a case presentation, a team will not be eligible for subsequent presentations related to the other modules. Still, it will be responsible for preparing the PowerPoint for those cases.

This cycle will be repeated until the end of the semester.

The members of the teams showing the best performance at least twice will get an extra 10 points in bonus at the end of the term.

**Grading**:

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| Midterm Exams (x2) | : 25% |
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| Quizzes (x3) | : 15% |
| The report is delivered in the form of a PowerPoint presentation for the cases in each module.  Presentation performance(individual+team) | : 15%  : 15% |
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| Final Exam | : 30% |

Evaluation of the reports related to the cases for each module (to be done by the votes of the students other than the team members as well as by myself)

We will use the following criteria for the evaluation of case reports:

1) comprehensiveness in the discussion of the issues embedded in the case (persuasiveness of the arguments presented for this, 20 points), 2) comprehensiveness in alternative solution perspectives discussed on the problem (30 points), 3) comprehensiveness of the logic presented to “make the case” for the preferred solution alternative (30 points), 4) creativity or uniqueness in the solution alternative presented (20 points)

Peer Evaluation in Teamwork

The students will be asked to evaluate the presenting team members during the presentations.

Each student will score the presenters based on 1) the presentation style, 2) answers to questions, and 3) timing. Scores will be given using a 0-100 scale for each criterion.

The peer evaluation based on the students' voting will directly impact the presentation grade with an effect of (60%).

Students will also be asked to evaluate their team members in preparing the case report for each module. Each student will divide 100 points between her team members, including herself. This division should reflect that person’s judgment of the contribution of her team members. The scores should not be merely functions of time spent by each member. Still, they should be measures of the "contribution," their relative contribution to the idea generation, research, analysis, writing, oral presentation, report writing, etc. If the team was highly functional, and each member did what they committed themselves to, then the student could assign the same mark to each team member. If, on the other hand, some team members did not fulfill their commitments and did not contribute as much as the others, then points can be distributed unevenly.

The instructor will aggregate the points submitted by all team members. Every student will be given his/her aggregate peer evaluation without disclosing the individual peer evaluations to the students.

If the team does not agree, for example, if three students divide the marks evenly and the fourth one divides them unevenly, the instructor will use his/her judgment to assign peer evaluation marks—possibly after meeting with the team members.

In cases where there are conflicting marks, it is most likely that the instructor will meet with the team members and provide a mark based on an interview. For example, in a group of four, if Students A and B believe they did most of the work, and Students C and D believe otherwise, the team may be called in for an interview to be fair to everyone.

Experience indicates that in most groups, points will be distributed evenly. There will be a few groups where peer evaluations will play a role in the marks. The primary goal of this exercise is to avoid giving undeserved credit to individuals who did not help their teams. However, it is possible to have upward adjustments in marks for students who have done more than the group expected.

The peer evaluation will have a direct impact on your case report. For example, if the group mark is 25 out of 30, and your peer evaluation indicates that your contribution was less than what was expected, your case report mark will be less than 25 out of 30. There are no simple rules for adjustment

**Requirements:**

* ***It is mandatory :***

1. to answer 70% of the top hat questions that will be asked during the lecture hours and
2. to give right answers in 40% of them. This will be controlled through Zoom poll reports. Any student who fails to accomplish these requirements will get an N/A grade for the course

* Attendance sheets will start with the second lecture
* Oral exam will be applied in case it is necessary

A makeup exam for either midterm or quizzes will be done the last week (the students who want to make up for a midterm exam will have to answer 4 questions, whereas those who want to make up for a quiz will have to answer only the first 2 questions).

**Academic Honesty:**

Cooperation enhances learning, so you are encouraged to work in groups, ask for and give help freely in all appropriate settings. At the same time, as a matter of personal integrity, you should only represent your work as yours. Any work submitted to be evaluated in this class should be an original piece of writing, presenting your ideas in your own words. Everything you borrow from books, articles, or websites (including those in the syllabus) should be properly cited. Although you are encouraged to discuss your ideas with others (including your friends in the class), you mustn't share your writing (slides, MS Excel files, reports, etc.) with anyone. Using ideas, text, and other intellectual property developed by someone else while claiming it is your original work is *plagiarism*. **Copying from others or providing answers or information, written or oral, to others is *cheating*.** Unauthorized help from another person or having someone else write one’s report or assignment is *collusion*. Cheating, plagiarism, and collusion are serious offenses that could result in an F grade and disciplinary action. Please pay utmost attention to avoid such accusations.

**Classroom policies and conduct**

Sabanci Management Undergraduate Program values participatory learning. Establishing the necessary social order for a participatory learning environment requires that we all:

* Come prepared to make helpful comments and ask questions that facilitate your understanding and that of your classmates. This requires that you complete the assigned readings for each session before class starts.
* Listen to the person who has the floor.
* Come to class on time.
* Please have your laptop for class activities such as taking notes or referring to a spreadsheet. You should not be doing any non-class activities during class time. Laptop usage may be forbidden if it is abused or if it distracts the professor or other students.

**Course Schedule:**

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| **Week 1** | **Date:** | **February 20&21** |
| Topic: | | Introduction to Business Analytics, Describing the distribution of a single variable |
| Requirements: | | Chapter 1, Chapter 2 |
| **Week 2** | **Date:** | **February 27&28** |
| Topic: | | Finding Relationships among variables |
| Requirements: | | Chapter 3 |
| **Week 3** | **Date:** | **March 5&6** |
| Topic:  Requirements: | | Probability and Probability Distribution, Normal Distribution, Statistical Inference: Sampling Distribution,  Selected parts of chapter 4, chapter 5, chapter 7 |
| **Week 4** | **Date:** | **March 12&13** |
| Topic:  Requirements: | | Confidence interval estimation,  Chapter 8 |
| **Week 5** | **Date:** | **March 19&20** |
| Topic: | | Hypothesis Testing |
| Requirements: | | Chapter 9  March 22: Submission of the presentation report of cases related to Module 1 |
| **Week 6** | **Date:** | **March 26** |
| Topic: | | Presentation of cases of module 1 by the randomly selected team(s) and discussion based on the questions of the best-performing team  **March 27** |
| Requirements: | | **Quiz 1**  Quiz 1 will cover questions related to the topics of Module 1 |
| **Week 7** | **Date:** | **April 2&3** |
| Topic: | | Tests for Normality, Chi-Square test for independence |
| Requirements: | | Chapter 9 |
| **Week 8** | **Date:** | **April 9-10**  **Spring Break and Feast of Ramadan-No Class** |
| Requirements: | |  |
| **Week 9** | **Date:** | **April 16**  **Midterm 1**  **April 17** |
| Topic: | | Regression Analysis: Estimating relationships |
| Requirements: | | Chapter 10 |
| **Week 10** | **Date:** | **April 23-**  **No Class**  **April 24**  Regression Analysis: Estimating relationships  April 26  Submission of module 2 case PowerPoint reports |
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| Requirements: | |  |
| **Week 11** | **Date:** | **April 30**  Presentation of cases of module 2 by the randomly selected team(s) and discussion based on the questions of the best-performing team  Quiz 2: Quiz 2 will cover questions related to the topics of module 2-  **May 1**  **No class** |
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| **Week 12** | **Date:**  Topic**:**  Requirements | **May 7**  Regression Analysis: Estimating relationships(cont.) and Statistical Inference  Chapters 10-11  **May 8**  Regression Analysis: Statistical Inference(cont.)  Chapters 11 |
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| **Week 13** | **Date:** | **May 14&15** |
| Topic: | | Regression Analysis: Statistical Inference (cont.) |
| Requirements: | | Chapter 11  May 17  Submission of module 3 PowerPoint reports |
| **Week 14** | **Date:** | **May 21** |
| Topic: | | Presentation of cases of module 3: by the randomly selected team(s) and discussion based on the questions of the best-performing team,  **May 22** |
| Requirements: | | Quiz 3(Quiz 3 will cover the topics of Module 3) |
| **Week 14** | | **Date:** | **May 28**  **Midterm 2 (topics of module 1, 2 and 3)** |
| Topic: | | | **May 29**  **Make up** |
| Requirements: | | | **Final (during the exam week)** |