Date:2080-02-18
Mathematics for Data Science, MDS 504
Topics for Presentation

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Note: Each students will get 50 % marks in group and 50 % marks as individual.

Evaluation Scheme:

1.Contents Coverage and Depth: Extensive knowledge, Information of topic **(10 Marks)**	**2.Slide Quality:** References/ Balanced/ Quality of figures/ Visual / highly / relevant /effective use of technology /Accuracy/Appropriateness/ no errors in spelling, grammar and punctuation **(10 Marks)**	**3.Presentation Skill:** Preparation/ Participation/ Group Dynamics/ Engaging **(10 Marks)**	4.**Questions and Answers:** Complete understanding of assignment/ Accurately and fully answered all questions posed. **(10 Marks)**	**Total Marks (Out of 40)**

Presentation Topics:

1. Presentation Topic- Set 1: For Roll Numbers = 1– 4

Presentation Date: DAY – One(I), Time – 25 Minutes

Explain how the concepts of matrices, vectors, and linear transformation are useful in Linear Algebra. Describe the role of basic linear algebra techniques which are useful in the study of data science. How machine learning uses Linear Algebra to solve Data Sciences problems? Make a slide in brief including the above topics and present it in your own context in 25 minutes. Give numerical examples in each case to justify your presentation.

2. Presentation Topic- Set 2: For RN 5–RN 8

Presentation Date: DAY – One(II) , Time – 25 Minutes

Is Mathematics useful in Data Science? Explain how the concepts of vector spaces are studied in Data Sciences. Make a slide in brief including the topics linear functions, and linear transformations; Matrices as transformations, Linear combinations, linear independence; orthonormal bases, etc., and present it in your own context in 25 minutes. Give numerical examples in each case to justify your presentation.

3. Presentation Topic- Set 3: For RN 9–RN 12

Presentation Date: DAY – One(III) , Time – 25 Minutes

As a data science student, why do you learn Linear Algebra? What kind of math is important for machine learning? State and describe the properties of linear Algebra that can be applied in Data Science and Machine learning problems. State its various applications in Data Sciences. Make a slide in brief including the above topics and present it in your own context in 25 minutes. Give numerical examples in each case to justify your presentation.

4. Presentation Topic- Set 4 : For RN 13– RN 16

Presentation Date: DAY – TWO(I) , Time – 25 Minutes

Explain how the concepts of Eigenvectors and Eigenvalues, EigenValue Decomposition (EVD); Singular Value Decomposition (SVD) are applied in Data Science. What kind of math is important for machine learning? How Machine Learning uses linear Algebra to Solve Data science problems. Make a slide in brief including the above topics and present it in your own context in 25 minutes. Give numerical examples in each case to justify your presentation.

5. Presentation Topic- Set 5: For RN 17– RN 20

Presentation Date: DAY – TWO(II) , Time – 25 Minutes

Explain the topics studied in System of Linear Equations. Describe how the concepts of the System of Linear Equations are studied in the Data Sciences. What kind of math is important for machine learning? State its various applications in Data Sciences. Make a slide including the above topics in brief and present it in your own context in 25 minutes. Give numerical examples in each case to justify your presentation.

6. Presentation Topic- Set 6: For RN 21– RN 24

Presentation Date: DAY – TWO(III) , Time – 25 Minutes

Explain the various topics of Spectral Theories. Describe how the various concepts of spectral theories are studied and applied in the Data Sciences. Discuss Linear Algebra techniques for Machine Learning, their Uses, and their works. Make a slide in brief including the above topics and present it in your own context in 25 minutes. Give numerical examples in each case to justify your presentation.

7. Presentation Topic- Set 7:For RN 25– RN 28

Presentation Date: DAY – THREE(I), Time – 25 Minutes

Explain various Applications of linear algebra in the theory of probability and data science. What linear algebra topics are needed for machine learning? State its various applications in Data Sciences. Mention the reasons to apply linear algebra across NLP and ML. Make a slide in brief including the above topics and present it in your own context in 25 minutes. Give numerical examples in each case to justify your presentation.

8. Presentation Topic- Set 8:For RN 29– RN 32

Presentation Date: DAY – THREE(II) , Time – 25 Minutes

Explain how the concepts of linear equations, their Geometrical structures, and Orthogonalization are applied in data science careers. What linear algebra topics are needed for machine learning? State its various applications in Data Sciences and related areas. Make a slide in brief including the above topics and present in 25 minutes. Give numerical examples in each case to justify your presentation.

9. Presentation Topic- Set 9: For RN 33– RN 36

Presentation Date: DAY – THREE(III) , Time – 25 Minutes

Is Algebra, useful in a Data Science career? Explain how the various concepts of Linear Algebra are studied in Machine learning. Why is Linear Algebra useful in Data Science and related area? State its various applications in Data Sciences. Make a slide in brief including the above topics and present it in your own context in 25 minutes. Give numerical examples in each case to justify your presentation.

10. Presentation Topic- Set 10: For RN 37– RN 40

Presentation Date: DAY – FOUR(II) , Time – 25 Minutes

Are Linear Algebra, vectors, and matrices useful in Machine Learning? Explain how these concepts are studied in the Data Sciences. Describe what linear algebra topics are needed for machine learning. State its various applications in Data Sciences. Make a slide in brief including the above topics and present it in your own context in 25 minutes. Give numerical examples in each case to justify your presentation.

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