

Machine Learning: Course Overview

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Spring 2024

Course Details

Course Webpage: (Visit regularly for periodic announcements and updates.)

cse.iitkgp.ac.in/~aritrah/course/theory/ML/Spring2024/

CSE-Moodle Page: (Enroll here to submit projects for evaluation.)

moodlecse.iitkgp.ac.in/moodle/course/view.php?id=561

(Enrolment-Key will be shared through Email)

Class Timings: [Slot : A3] and [L-T-P : 3-0-0]

- Monday : 08:00am – 10:00am
- Tuesday : 12:00pm – 01:00pm

Venue: NC-324 (Nalanda Complex)

Instructor: Dr. Aritra Hazra (Assistant Professor, CSE)

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Office: CSE-102, Ground Floor, CSE Dept.

Teaching Assistants

- Akash Kundu M.Tech. student (CSE)
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Examination Dates and Evaluations

- Tests:
- Mid-Semester (60 marks) :
DD-Feb-2023 (DAY), TIME
 - End-Semester (100 marks) :
DD-Apr-2023 (DAY), TIME

Mini-Projects: (20 marks each, about 3 weeks time)

- Project 1 : 21-Jan-2024 – 10-Feb-2024
- Project 2 : 25-Feb-2024 – 16-Mar-2024
- Project 3 : 24-Mar-2024 – 13-Apr-2024
(Programming in C / C++ / Java / Python)

Evaluation Criteria:

- 30% from Mid-Semester (i.e. 1/2 of Mid-Sem Marks)
- 50% from End-Semester (i.e. 1/2 of End-Sem Marks)
- 20% from Mini-Project (i.e. 1/3 of Total Project Marks)

Textbooks and References

- ① Tom Mitchell; “Machine Learning”; First Edition, McGraw Hill, 1997.
- ② Yaser S. Abu-Mostafa, Malik Magdon-Ismael, Hsuan-Tien Lin; “Learning From Data”; First Edition, AML Book, 2012.
- ③ Ethem Alpaydin; “Introduction to Machine Learning”; Third Edition, The MIT Press, September 2014.
- ④ Pang-Ning Tan, Michael Steinbach, Vipin Kumar; “Introduction to Data Mining”; Second Edition, Pearson Addison-Wesley, 2019.
- ⑤ Christopher Bishop; “Pattern Recognition and Machine Learning”; First Edition, Springer-Verlag New York, 2006.
- ⑥ Trevor Hastie, Robert Tibshirani, Jerome Friedman; “The Elements of Statistical Learning”; Second Edition, Springer, 2001.
- ⑦ Richard O. Duda, Peter E. Hart, David G. Stork; “Pattern Classification”; Second Edition, John Wiley & Sons, November 2000.

Advanced Study References

- ① Kevin P. Murphy; “Machine Learning: A Probabilistic Perspective”; MIT Press, 2012.
- ② Shai Shalev-Shwartz, Shai Ben-David; “Understanding Machine Learning: From Theory to Algorithms”; First Edition, Cambridge University Press, 2014.
- ③ Richard S. Sutton and Andrew G. Barto; “Reinforcement Learning: An Introduction”; 2nd Edition, MIT Press, 2020.
- ④ Ian Goodfellow, Yoshua Bengio and Aaron Courville; “Deep Learning”; MIT Press, 2016.
- ⑤ Christoph Molnar; “Interpretable Machine Learning”; Leanpub Publisher, 2019.

Here We Begin ...

Machine^{Our} Learning Objectives:

Problem: What is Machine Learning?

Feasibility: Can Machines really Learn?

Practicality: When can Machines Learn?

Algorithm: How can Machines Learn?

Theory: How can Machines Learn well enough?

Variants: What are various Machine Learning paradigms?

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Questions?

"The only stupid question is the one you were afraid to ask but never did."

– Rich Sutton

Thank You!

