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| **Name of the program:** | MSc program in Applied Statistics  |
| **Department:** | Department of Statistics  |
| **Semester/Year/Intake** | Semester 2/Year2/2020 |
| **Year:** | 2022 |
| **Course Code:** | STA 529 2.0 |
| **Course Name:** | Data Mining |
| **Credit Value:** | 2.0 |
| **Core/Optional** | Core |
| **Hourly Breakdown** | **Theory** | **Practical** | **Independent Learning** |
| 20 | 10 | 70 |
| Course Aim/Intended Learning Outcomes:At the completion of this course student will be able to * Apply suitable classification/regression techniques to solve a given problem
* Validate the model fitted using a suitable method
* Extract important association rules from a given dataset
* Extract important rules across time/position from a given dataset
* Extract patterns from a large unstructured text data

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| Course Content: (Main topics, Sub topics)* Introduction to Data Mining
* Classification and Regression Methods in Data Mining

 K-Nearest Neighbour, Linear and Quadratic Discriminant Analysis, Decision Trees, Bagging, Random Forest, Boosting, Support Vector Machine* Model validation

 K-fold Cross validation, ROC Analysis, Contingency Table Based Measures* Association Rule Mining
* Introduction to Text Mining
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| **Teaching /Learning Methods:** Lectures and student-centered teaching learning methods**Mode of Delivery:** All lectures will be delivered using online teaching methods till the university grants permission to conduct face-to-face lectures for postgraduate students.  |
| Assessment Strategy: |
| Continuous Assessment30%  | Final Assessment70% |
| Details: quizzes %, mid-term %, other % (specify) 0 % 100% 0% | Theory (%)50% | Practical (%)50% | Other (%)(specify)0 |
| References/Reading Materials:* Data Mining and Analysis: Fundamental Concepts and Algorithms, Mohommed J. Zaki, Wagner Meira Jr. Cambridge University Press New York, NY, USA
* Data Mining Concepts and Techniques 3rd Edition, Jiawei Han, Micheline Kamber, Jian Pei, Morgan Kaufmann Publishers 225Wyman Street,Waltham, MA 02451, USA
* R and Data Mining: Examples and Case Studies Yanchang Zhao http://www.RDataMining.com
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