FINANCIAL ANALYTICS

MBA BATCH: 2016-18 / TRIMESTER: IV

DEPARTMENT OF MANAGEMENT,
AMRITA SCHOOL OF BUSINESS
AMRITA VISHWA VIDYAPEETHAM (UNIVERSITY)

INSTRUCTOR AND CONTACT INFORMATION

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COURSE OBJECTIVE

To provide a strong foundation in financial analytics in order to handle complex financial data, build advanced analytical models and deliver effective visualization product and comprehensive reports.

LEARNING OUTCOMES

The course covers a reasonable curriculum in financial analytics
At the end of the course the student should be able to

1. Analyse and model financial data
2. Construct and optimize asset portfolios
3. Evaluate and model Risk on various financial assets
4. Use the most powerful and sophisticated routines in R for analytical finance.

COURSE DESCRIPTION

The course is an application oriented one and most of the exercises have to be done with real time data. During the course basic concepts regarding computational finance will be revised and applied using real time data. Various capabilities of R environment and computational routines in R for finance will be introduced in a comprehensive manner.
REQUIRED COURSE MATERIALS AND READINGS

Prescribed Text Book for the course


OPTIONAL COURSE MATERIALS & READINGS (CASES, ARTICLES, REPORTS ETC)


**EVALUATION CRITERIA**

Assignments & final Project, Mid term and End term examinations

**Components and Weights (faculty can Decide on components**

<table>
<thead>
<tr>
<th>Components</th>
<th>Weightage (%)</th>
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<tbody>
<tr>
<td>Assignments and final projects</td>
<td>30%</td>
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<tr>
<td>Midterm Exam</td>
<td>30%</td>
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<tr>
<td>End term</td>
<td>40%</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>100%</strong></td>
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**DETAILS OF SESSION: TENTATIVE COURSE SCHEDULE**

<table>
<thead>
<tr>
<th>WEEK</th>
<th>SESSION NO.</th>
<th>TOPICS TO BE COVERED</th>
<th>ASSIGNED READING, CASE DISCUSSION, ASSIGNMENTS</th>
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</thead>
<tbody>
<tr>
<td>Week 1</td>
<td>1 to 2</td>
<td>Introduction to Financial Analytics: Definition, relevance and scope financial</td>
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<td>Analytics, recent trends in financial analytics</td>
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<tr>
<td>2 to 3</td>
<td>3 to 8</td>
<td>Financial Time Series and Their Characteristics: Asset Returns, Distributional</td>
<td>Case: Weekly Regular Gasoline Price Page No:129</td>
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<td>Properties of Returns, Review of Statistical Distributions and properties of financial time</td>
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<tr>
<td>TIME</td>
<td>4to 5</td>
<td>9 to 12</td>
<td>4to 5</td>
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<tr>
<td>6 to 8</td>
<td>13 to 18</td>
<td>9 to 10</td>
<td>19 to 22</td>
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<tr>
<td>11 to 12</td>
<td>23 to 28</td>
<td>13 to 15</td>
<td>29 to 30</td>
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<thead>
<tr>
<th>Series</th>
<th>Asset Portfolio Models: Basics of portfolio construction, Markowitz Theorem, Capital Asset Pricing Model, Diversification and Portfolio Optimization</th>
<th>Case: Asset Portfolio construction from BSE</th>
</tr>
</thead>
<tbody>
<tr>
<td>9 to 10</td>
<td>High-Frequency Data Analysis: Non synchronous Trading, Bid–Ask Spread of trading Prices, Empirical Characteristics of Trading Data, Models for Price Changes, Duration Models</td>
<td>Case: Empirical Characteristics of Trading Data</td>
</tr>
<tr>
<td>11 to 12</td>
<td>Modeling Credit Risk: Corporate Liabilities as contingent claims, Endogenous default boundaries and optional Capital Structure, Intensity Modeling, Rating based term-structure models, Credit risk and interest-rate Swaps, Modeling dependent defaults</td>
<td>Case: VaR estimation for IBM stocks</td>
</tr>
<tr>
<td>13 to 15</td>
<td>Derivative Pricing: Issues regarding derivative markets. Brownian motion, Black - Sholes model. Modeling derivative prices</td>
<td>Case: Sectoral Index derivative</td>
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ANY OTHER SPECIFIC RULES


Sharing computers are not allowed. They should make their own arrangement for charging the laptops.