

Subject Code	MM5427
Subject Title	Textual Analysis in Business
Credit Value	3
Level	5
Pre-requisite/ Co-requisite/ Exclusion	Business Intelligence and Decisions (MM5412) or Business Analytics (MM5425)
Objectives	<p>The ability to process unstructured data has become an essential capability of a company. Social media is an obvious example where firms need to interface directly with data sources with no predefined structure and apply natural language processing (NLP) techniques to convert unstructured data into signals and useful inputs to various applications, such as digital marketing and sentiment analysis. Major sources of unstructured text inputs to these systems can be news, commentaries, and reports extracted from social media, traditional news media, and information vendors. Besides social media analytics, financial technologies (FinTech) also exemplify this trend of relying on unstructured text processing to deliver novel financial services to customers.</p> <p>This course covers the concepts and techniques for applying textual analytics in processing unstructured text data in the business domain. Python programming language will be the primary implementation tool for data analysis and model development. An extended lab session intends to train students with good knowledge and skills for solving practical problems, such as sentiment analysis, document classification, word embedding, and topic modeling.</p>
Intended Learning Outcomes	<p>Upon completion of the subject, students will be able to:</p> <ol style="list-style-type: none"> 1. Know the basics of textual analytics techniques well enough to interact with business analysts, data scientists, engineers, and machine learning developers. 2. Be able to apply textual analytics techniques to analyze various text data in business (e.g., financial disclosure, social media, and news) for managerial implications. 3. Gain hands-on experience using popular textual analytics tools and get ready for job positions that require familiarity with different computational approaches to processing business text data.
Subject Synopsis/ Indicative Syllabus	<ol style="list-style-type: none"> 1. Characteristics of Text Data 2. Text Preprocessing Techniques 3. Text Representation and Feature Engineering 4. Lexicon, Topic Modeling, and Knowledge Graph 5. Limitations in Conventional Textual Analytics Approaches 6. Word2vec and Its Applications 7. Use Cases Sharing (e.g., News-Induced Marketing Signaling, Fake News Detection, Conversational Chatbots, AI Ethics in Recruitment)

<p>Teaching/Learning Methodology</p>	<p>The subject will be taught via lectures and labs with various methods as its pedagogy to help students achieve the above learning outcomes.</p> <ol style="list-style-type: none"> 1. General announcement and an opportunity for students to ask questions to address any unfinished thoughts from the previous class; 2. Overview of the current class agenda and its relationship to past discussion; 3. Extended period of students- or instructor-led discussion and practice of the assigned case or exercises. Collaborative learning strategies (learning via discussion in a small group) may be employed during part of this time; 4. Lab sessions with detailed instructions and comprehensive resources to equip students with hands-on experiences in using Python. 																																								
<p>Assessment Methods in Alignment with Intended Learning Outcomes</p>	<table border="1" data-bbox="512 815 1369 1424"> <thead> <tr> <th rowspan="2">Specific assessment methods/tasks</th> <th rowspan="2">% weighting</th> <th colspan="4">Intended subject learning outcomes to be assessed (Please tick as appropriate)</th> </tr> <tr> <th>1</th> <th>2</th> <th>3</th> <th></th> </tr> </thead> <tbody> <tr> <td>1. Classroom Performance</td> <td>20%</td> <td>✓</td> <td>✓</td> <td>✓</td> <td></td> </tr> <tr> <td>2. Individual Assignments</td> <td>25%</td> <td>✓</td> <td>✓</td> <td>✓</td> <td></td> </tr> <tr> <td>3. Group Project</td> <td>30%</td> <td>✓</td> <td>✓</td> <td>✓</td> <td></td> </tr> <tr> <td>4. Quiz</td> <td>25%</td> <td>✓</td> <td>✓</td> <td>✓</td> <td></td> </tr> <tr> <td>Total</td> <td>100 %</td> <td colspan="4"></td> </tr> </tbody> </table> <p><i>*Weighting of assessment methods/tasks in continuous assessment may be different, subject to each subject lecturer.</i></p> <p>To pass this subject, students are required to obtain Grade D or above in the overall subject grade.</p> <p>Explanation of the appropriateness of the assessment methods in assessing the intended learning outcomes:</p> <ol style="list-style-type: none"> 1. Classroom performance includes students’ active participation, feedback, and contribution in class, as well as classwork exercises and Q&A. Its purpose is to assess students’ understanding of key techniques in individual topics. 2. Individual assignments will assess students’ comprehensive power, critical thinking, analytical ability, and writing skills. 3. Group project enables students to work as a team to do a more in-depth study of a selected topic and apply the textual analytics methods to a real business situation. It assesses their knowledge and research, presentation, and writing skills. 	Specific assessment methods/tasks	% weighting	Intended subject learning outcomes to be assessed (Please tick as appropriate)				1	2	3		1. Classroom Performance	20%	✓	✓	✓		2. Individual Assignments	25%	✓	✓	✓		3. Group Project	30%	✓	✓	✓		4. Quiz	25%	✓	✓	✓		Total	100 %				
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	<p>4. The quiz is a good way to test students' understanding of the course materials comprehensively.</p> <p>The above methods are designed to ensure a balanced learning experience for all students taking this subject.</p>	
Student Study Effort Expected	Class contact:	
	▪ Lectures & lab materials	39 Hrs.
	Other student study effort:	
	▪ Preparation of Lectures	13 Hrs.
	▪ Preparation of Individual Assignments and Group Project	48 Hrs.
	▪ Preparation of Quiz	21 Hrs.
	Total student study effort	121 Hrs.
Reading List and References	<p>All course materials (Lecture slides, assignments, and lab handouts) are available on the course website.</p> <p><u>Reference Books:</u></p> <ul style="list-style-type: none"> ▪ <i>Natural Language Processing with Python</i>, by Steven Bird, Ewan Klein & Edward Loper, O'Reilly Media, 2009 ISBN: 978-0-596-51649-9 ▪ <i>Deep Learning for Natural Language Processing</i>, by Palash Goyal, Sumit Pandey & Karan Jain, Apress Media, 2018 ISBN: 978-1-4842-3684-0 	

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