

LSPR Communication & Business Institute

Subject Syllabus

Subject Code	:	PRDC09
Subject Title	:	Business Intelligence: Big Data & Analysis
Subject Specification	:	For students in Public Relations & Digital Communication Major

Subject Overview : This course discusses the phenomenon of Big Data which aims to provide insight to students so they can make use of it data as one of the considerations in the communication process. In this course, we will discuss the Big Data phenomenon associated with the industrial revolution 4.0, Big Data consensus, the nature and characteristics of data, stages and approaches in data processing such as data mining to artificial intelligence methods. Apart from that, in this course students are taught to be able to analyze phenomena which occurs on social media using online social networks and also Text Mining. This lecture also aims to enrich Student insight into the process of designing Public Relations methods based on data to make them more effective, efficient and appropriate.

Course Objectives :

1. Students will gain a comprehensive understanding of the Big Data phenomenon within the context of the Fourth Industrial Revolution, including its significance, challenges, and opportunities.
2. Students will examine the consensus surrounding Big Data, including its definition, scope, and implications for various industries, including public relations.
3. Students will learn about the nature and characteristics of data, including its types, sources, and formats, to develop a foundational understanding of data analysis
4. Students will learn how to analyze phenomena occurring on social media platforms using online social networks and text mining techniques, enabling them to understand and interpret social media trends and conversations effectively.

Course Method : The course will be conducted through interactive learning, it will consist of class discussion, students presentation, quiz, case study analysis , paper, assignment and exams.

Learning Outcome (Competence) :

- Knowledge : Understanding of the significance and implications of Big Data in various industries, including its relevance to communication processes and public relations.

- Skill : Ability to analyze social media phenomena using online social networks and text mining techniques.
- Attitude : Able to recognition of ethical considerations in handling and analyzing data, including privacy, confidentiality, and data security.

Course content :

Week	Topic
	Introduction to Big Data and Analytics
	Data – Characteristics and Ecosystem
	Data Mining – Knowledge Discovery from Database
	Introduction – Artificial Intelligence
	Social Media Analytics & Digital Data Gathering
	Text Mining and Natural Language Processing
	Materials Review Session 1-3
	Big Data Phenomenon in Public Relations
	Public Relations & Data Analysis
	Degree of Centrality for Social Network Analysis
	Betweenness Centrality for Social Network Analysis
	Closeness Centrality for Social Network Analysis I
	Closeness Centrality for Social Network Analysis II
	Playground Final Examination
	Final Examination

Grading System :

In the Letter Grade System, the quantitative grades mean:

Grade	Symbol	Conversion Value
90 – 100	A	4.0
85 – 89.99	A-	3.7
80 – 84.99	B+	3.3
75 – 79.99	B	3.0
70 – 74.99	B-	2.7
65 – 69.99	C+	2.3
60 – 64.99	C	2.0
50 – 59.99	C-	1.7
40 – 49.99	D	1.0
< 40	E	0

Course Evaluation :

As a general rule, students are evaluated based on the following criteria:

Final Examinations	40%
Weekly Discussion	40%
Quiz	10%
Live Sesion Attendance	10%
TOTAL	100%

Lecturers, however, have the option of requiring midterm and final papers in lieu of midterm and final examinations. They may likewise change the percentage (weight) for each of the abovementioned items.

Scheme of Work :

Session	Title/Topic	Area Discussion	Activities
1	Introduction to Big Data and Analytics	a. Brief info on the subject b. Characteristics of Big Data c. Importance and Applications d. Challenges and Opportunities	1. Lecturer's presentation 2. Question and answer
	Data – Characteristics and Ecosystem	a. Definition of Data b. Characteristics of Data c. Data Ecosystem d. Importance of data e. Applications of data	1. Lecturer's presentation 2. Question and answer
2	Data Mining – Knowledge Discovery from Databases	a. Introduction to Data Mining b. Definition of Data Mining c. Data Mining Process d. Data Mining Techniques e. Applications of Data Mining	1. Lecturer's presentation 2. Class discussion 3. Question and answer
	Introduction to Artificial Intelligence	a. Definition of Artificial Intelligence b. Brief History of Artificial Intelligence c. Types of Artificial Intelligence d. Applications of Artificial Intelligence	1. Lecturer's presentation 2. Case Study 3. Assignment
3	Social Media Analytics & Digital Data Gathering	a. Definition of Social Media Analytics b. Overview of digital data gathering methods c. Social Media Listening and Monitoring d. Social Media Analytics Techniques e. Applications of Social Media Analytics	1. Lecturer's presentation 2. Class discussion 3. Question and answer 4. Case Study
	Text Mining and Natural Language Processing	a. Definition of Text Mining b. Text Preprocessing c. Feature Extraction	1. Lecturer's presentation 2. Class discussion

		d. Text Classification and Sentiment Analysis e. Named Entity Recognition (NER) f. Text Summarization and Topic Modeling g. Applications of Text Mining and NLP	3. Question and answer 4. Case Study
4	Materials Review Session 1-3		1. Lecturer's presentation 2. Class Discussion 3. Question and answer 4. Practice
	Big Data Phenomenon in Public Relations	- a Importance of Big Data in Public Relations - b Applications of Big Data in Public Relations - c Challenges and Opportunities	1. Lecturer's presentation 2. Class discussion 3. Question and answer
5	Public Relations & Data Analysis	- a The Role of Data Analysis in Public Relations - b Types of Data Analysis in Public Relations - c Data Sources for Public Relations - d Key Performance Indicators (KPIs) for PR - e Data Visualization Techniques	1. Lecturer's presentation 2. Class discussion 3. Question and answer 4. Case Study
	Degree of Centrality for Social Network Analysis	a. Definition and Conceptual Framework b. Degree Centrality c. Applications of Degree Centrality d. Real-world Examples and Case Studies	1. Lecturer's presentation 2. Class discussion 3. Question and answer 4. Study Case
6	Betweenness Centrality for Social Network Analysis	a. Definition and Conceptual Framework b. Calculation of Betweenness Centrality c. Interpretation and Significance d. Applications of Betweenness Centrality	1. Lecturer's presentation 2. Class discussion
	Closeness Centrality for Social Network Analysis I	a. Definition and Conceptual Framework	1. Lecturer's presentation 2. Class discussion

		b. Calculation of Closeness Centrality c. Interpretation and Significance	3. Question and answer
7	Closeness Centrality for Social Network Analysis II	a. Applications of Closeness Centrality b. Case Study	2. Lecturer's presentation 3. Class discussion 4. Assignment 5. Case Study
	Playground Final Examination		1. Lecturer's presentation 2. Class discussion 3. Practice
8	Final Examination		

Final Paper Guideline : Group Project or Group Presentation

References :

1. Frank Ohlhorst. Big Data Analytics Turning Big Data into Big Money. John Wiley & Sons, Inc.2013
2. Xindong, et.al.(2014) Data Mining with Big Data. IEEE Transactions On Knowledge And Data Engineering. Vol 26.
3. Anna Rotondo., Fergus Quiligan. (2020). Evolution Paths for Knowledge Discovery and Data Mining Process Models. Springer Nature Singapore
4. P. Moscato, N. J. de Vries (eds.), Business and Consumer Analytics: New Ideas. Chapter 8: Centrality in Networks: Finding the Most Important Nodes. Springer Nature Switzerland AG. 2019.
Url :https://deim.urv.cat/~sergio.gomez/papers/Gomez-Centrality_in_networks-Finding_the_most_important_nodes.pdf
5. Wouter van Atteveldt, Damian Trilling, Carlos Arcila Calderon. Computational Analysis of Communication. Url :<https://cssbook.net/index.html>
6. Cecilia Mascolo. Social and Technological Network Analysis. Lecturer Note. University of Cambride. Url:<https://www.cl.cam.ac.uk/teaching/1213/L109/stna-lecture3.pdf>
7. Explorations in Artificial Intelligence and Machine Learning. CRC Press Taylor & Francis Group. Url:https://www.routledge.com/rsc/downloads/AI_FreeBook.pdf
8. Anne Kao, Stephen R. Poteet. Natural Language Processing and Text Mining.Springer. 2007
9. Sturart J Russell, Peter Norvig. Artificial Intellogence - A Model Approach, Thrid Edition. Pearson Education, Inc.2010
10. Doug Laney, "3D Data Management: Controlling DataVolume, Velocity, and Variety", Gartner, file No.949. 6 February 2001,Doug Laney,
11. "3D Data Management: Controlling DataVolume, Velocity, and Variety", Gartner, file No.949. 6 February 2001,

12. Connolly, Thomas; Begg, Carolyn; Strachan, Anne, Database System: A Practical Approach to Design, Implementation and Management, 3rd edition, Addison Wiley, 2001
 13. Korth, H., Database System Concept, McGraw Hill, 4th edition, New York, 2002
 14. I.H. Witten and E. Frank., Data Mining: Practical Machine Learning Tools & Techniques, WEKA, The University of Waikato
 15. Rajkumar Buyya, Rodrigo N Calheiros, Amir Vahid Dastjerdi. Big Data Principles and Paradigms. Elsavier, Inc., Cambridge 2016.
 16. Nora Hartsfield, Gerhard Ringel., Pearls in Graph Theory A Comprehensive Introduction., Academic Press, Inc., San Diego. 1990
 17. Pang-Ning Tan, M. Steinbach, V. Kumar, Introduction to DATA MINING, Pearson Education, Inc., Boston, 2006
 18. Berry, Michael JA. Linhoff, Gordon S., Mastering Data Mining: The Art and Science of Customer Relationship Management, John Wiley, Canada, 2000
 19. Chakrabarti, Soumen, Mining the Web: Discovering Knowledge from Hypertext Data, Morgan Kaufman Series, San Francisco, 2003
 20. Dilly, Ruth, Student Notes: Data Mining: An Introduction, Queens University, Belfast, Url: http://www.pcc.qub.ac.uk/tec/courses/datamining/stu_notes/dm_book_1.html
-

Prepared by:

Checked by :



Irvan Musti Septiar, M.Si

Dr. Dendy Muris, M.Si

Head of Communication Science E-Learning
Study Programme

Reviewed by :

Approved by :



Mikhael Yulius Cebis, M.Si, M.M.
Dean of Communication Faculty



Dr. Janette Maria Pinariya
Vice Rector I