BUSINESS STATISTICS FOR DATA SCIENCE (MANB 1123)

SEMESTER 2 2017/2018

DR. NURULHUDA FIRDAUS BT MOHD AZMI

COURSE OVERVIEW

- Ice-Breaking
- Course Synopsis
- Course Outcome
- Course Outline
- Assessment and Grading
- Course Analysis
- Course References

KNOW ME

Nurulhuda Firdaus Mohd Azmi (Huda)

Diploma in Computer Science (1997), BSc Computer Science (UTM) (1999),

MSc Applied Statistics (UPM) (2001) - Thesis Title: Identifying Multiple Outliers In Linear Regression By Clustering Methodology Using MM Estimators

PhD in Computer Science (Univ. Of York, UK)(2014) - Thesis Title: Artificial Immune Systems for Information Filtering: Focusing on Profile Adaptation

Area of research:

Soft Computing, Operational Research, Machine Learning, Data Mining, Data Analytics

Research Group (RG): Operational Business Intelligence (OBI)

Interest Group (IG): Machine Learning for Data Science (MLDS)

Contact Information:

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KNOWING YOU

- NAME
- ACADEMIC EXPERIENCE
- WORKING EXPERIENCE
- STATISTICAL/DATA ANALYSIS EXPERIENCE
- YOUR EXPECTATION FROM MANB 1123 CLASS

COURSE SYNOPSIS

This course **introduces students to a range of statistical techniques which managers use**. The students will use **statistical tools** such as R Studio (R Programming), SAS, MATLAB, SPSS and many others to perform calculations associated with statistical techniques. This course will begin with a brief overview of the discipline of **business statistics** and will then quickly focus on descriptive statistics, introducing graphical methods of describing data. The students will learn about descriptive statistics, the latter of which serves as the foundation for **statistical inference and predictive analytics**. We will also examine the techniques to study the relationship between two or more variables; this is known as regression. The focus in this subject is on **how to analyze and interpret results or the output from statistical packages**. The students will learn how to apply these techniques by working with examples which are relevant to most major business disciplines and the functional areas of large organizations. These include examples from Accounting (particularly Auditing), Economics, Finance, Human Resource Management, Information Technology, Logistics and Transport, Marketing and others business related domain. At the end of the course students will have **advanced the knowledge and skills to collect, organize, analyze, and interpret business statistical output**.

COURSE OUTCOME

At the end of the course, students will be able to:

- **Undertake** independent statistical analysis to make informed decisions and provide advice accordingly.
- **Apply** statistical methods to business related such as sales, human resource, logistic and supply chain and others.
- **Develop** analytics decision to solve business problems by finding new ideas and alternative solutions using statistical
- **Formulate** statistical solutions for business problems to find and manage relevant information from many sources.

ASSESSMENT & GRADING

Assessment	Quantity	% Each	% Total
Business Statistics Capstone Project (Group) - Use ANY statistical tools to analyze the data - Use Power BI to visualize the data and make it interactive presentation!	1	20	20
Project Presentation (Group) – Recorded as video presentation - Use dashboard based by Power BI (optional for extra 10 marks!)	1	10	10
Assignment (Pairs) - Hand and Computational Calculation	2	15	30
Final Exam - 2 Sections: Assessing your Understanding & Your Ability to do analysis and Informed Decision	1	40	40
		TOTAL	100

COURSE OUTLINE

TOPICS	ITEM
Introduction to Business Statistics, Data Analytics and Data Science **Data Collection** **Data Types, Data Measurement Level and Variables** **Descriptive Statistics: Visualization & Numerical Description** **Misleading graphical presentation**	**1**
Estimation: Confidence Interval, Sample Size, Parameter (Proportion)	**2**
Statistical Inference: Hypothesis Testing	**3**
Bivariate Analytics: Correlation & Linear Regression	**4**
Multivariate Analytics: Multiple Regression & Predictive Model Building	**5**
More to advance predictive: Forecasting Time Series Data **Know about prescriptive analytics**	**6**

https://github.com/hudafirdaus/MANB1123

COURSE SCHEDULE

CLASS TIME: 1ST Session – 10.00 am to 12.45 pm (with 10 min break)

2nd Session – 2.30 pm to 4 pm (with 10 min break)

COURSE SCHEDULE:

Meeting 1: Ice Breaking + Item 1 (Data Collection & Descriptive Stat) + Business Statistics Capstone Project Briefing

Meeting 2: Item 2 (Estimation) + Assignment 1 Briefing

Meeting 3: Item 3 (Statistical Inference: Hypothesis Testing)

Meeting 4: Item 4 (Bivariate Analytics: Correlation & Linear Regression) + Assignment 2 Briefing

Meeting 5: Item 5 & Item 6 (Multiple Regression & Predictive Model Building) + (Forecasting Time Series Data)

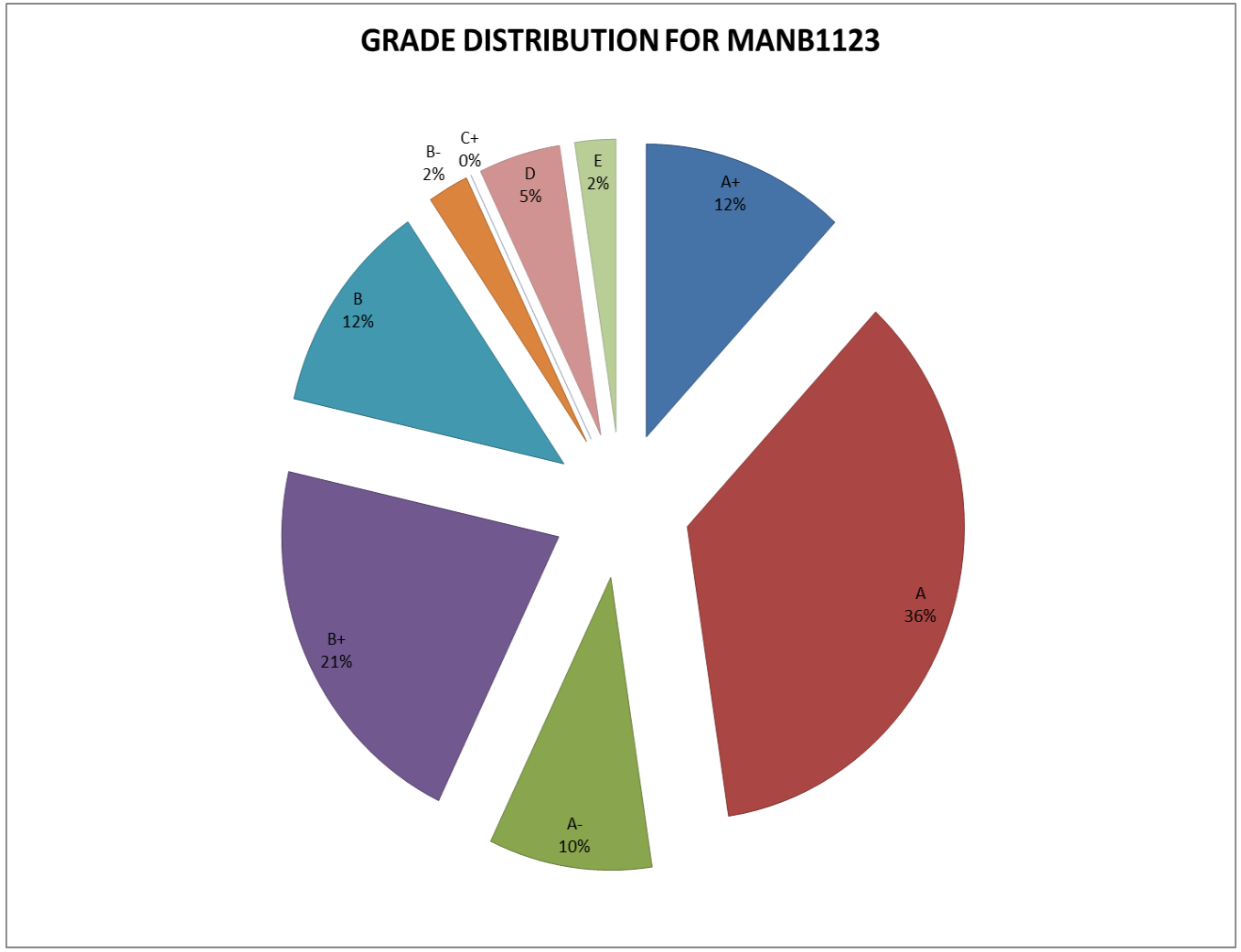
Meeting 6: Business Statistics Capstone Project Presentation + Final Exam Review

COURSE REFERENCES

Not Limited to

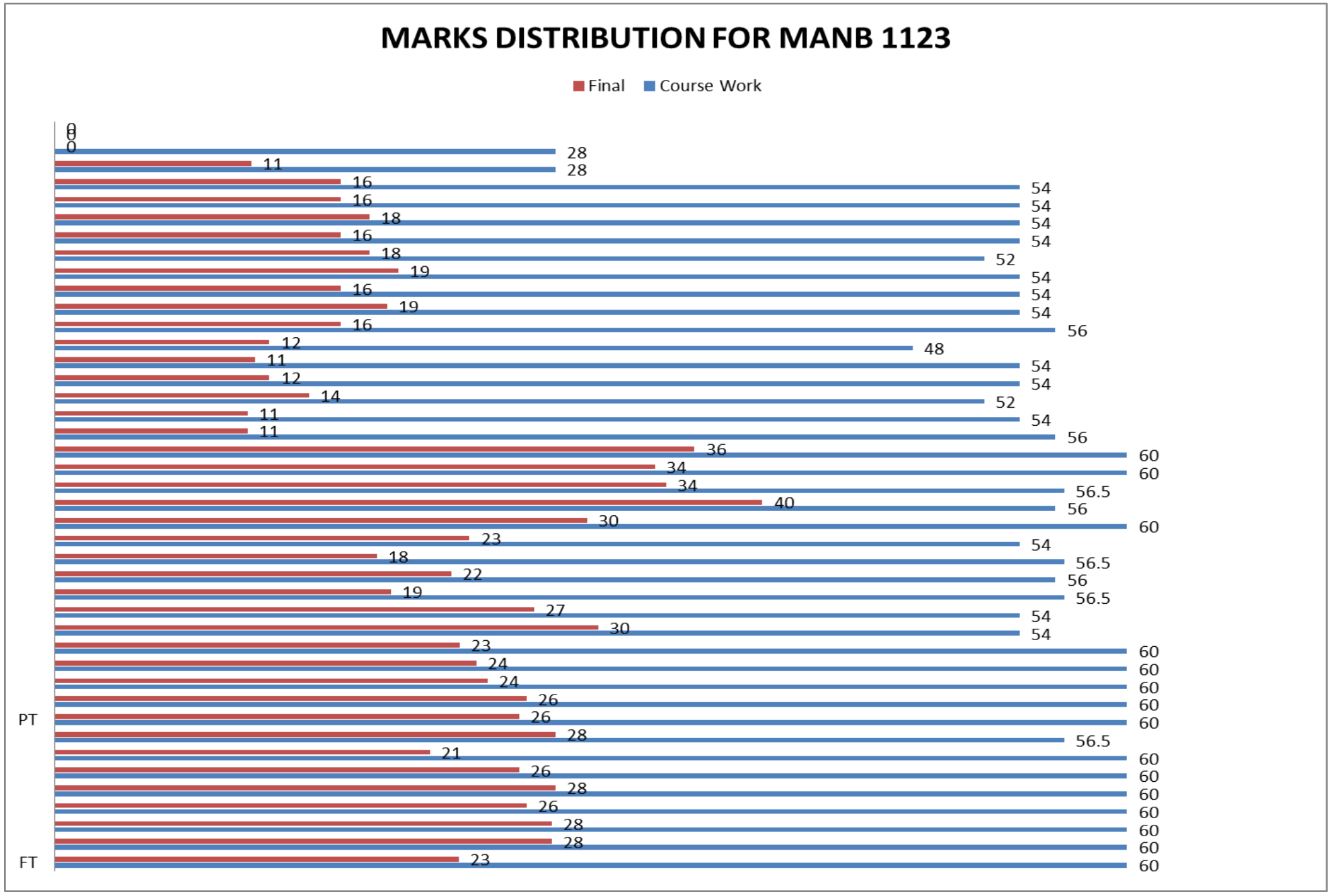
1) Peng, R.D. 2015. R Programming for Data Science. Learnpub. Available at: https://leanpub.com/rprogramming
2) Mendenhall, W., Beaver, R. J., Beaver, B. M. 2012. Introduction to Probability and Statistics 14th Edition. Duxbury Press. ISBN: 1133103758
3) Downing, Douglas, and Jeffrey Clark. Business statistics. Barron's Educational Series, 2010.
4) Berenson, Mark, et al. Basic business statistics: Concepts and applications. Pearson Higher Education AU, 2012.
5) Weiers, Ronald M. Introduction to business statistics. Cengage Learning, 2010.
6) Groebner Shannon Fry. Business statistics a Decision Making Approach (9th Edition). Pearson International, 2014.

COURSE ANALYSIS



Batch Student	Course Work	Final	Total	Gred
FT01	60	23	83	A
FT01	60	28	88	A
FT01	60	28	88	A
FT01	60	26	86	A
FT02	60	28	88	A
FT02	60	26	86	A
FT02	60	21	81	A
FT03	56.5	28	85	A
PT01	60	26	86	A
PT01	60	26	86	A
PT02	60	24	84	A
PT02	60	24	84	A
PT02	60	23	83	A
PT03	54	30	84	A
PT03	54	27	81	A
FT03	56.5	19	75	A-
FT03	56	22	78	A-
FT03	56.5	18	75	A-
PT03	54	23	77	A-
FT01	60	30	90	A+
FT03	56	40	96	A+
FT03	56.5	34	91	A+
PT02	60	34	94	A+
PT02	60	36	96	A+
FT03	56	11	67	B
PT03	54	11	65	B
PT03	52	14	66	B
PT03	54	12	66	B
PT03	54	11	65	B
FT02	48	12	60	B-
FT03	56	16	72	B+
PT03	54	19	73	B+
PT03	54	16	70	B+
PT03	54	19	73	B+
PT03	52	18	70	B+
PT03	54	16	70	B+
PT03	54	18	72	B+
PT03	54	16	70	B+
PT03	54	16	70	B+
PT02	28	11	39	D
PT02	28	0	28	D
FT03	0	0	0	E

COURSE ANALYSIS



YOUR PREPARATION

DEEP understand the course

FAMILIARIZE with the analytic tools

PASSION with the assignments and capstone project

BE PREPARED with the final exam