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**Course Syllabus – Semester 2 AY2020/21**  
**TBA2102 – Introduction to Business Analytics**

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**Course Information:**

Lecture Classroom: Online, Lecture Time: Tuesday 18:30-20:30  
Tutorial Classroom: Online, Tutorial Time: Tuesday 20:30-21:30  
Course Materials & Assignment submissions: LumiNUS  
Course Announcement, Q&A and Discussions: LumiNUS

**Course Facilitators:**

Lecturer: Sharon TAN ([tansl@comp.nus.edu.sg](mailto:tansl@comp.nus.edu.sg)), Office: COM2-0431  
TA: Oteng Ntsweng ([dison@nus.edu.sg](mailto:dison@nus.edu.sg)) ; TA: Alvaro RIVAS ([alvaro@u.nus.edu](mailto:alvaro@u.nus.edu))

**Consultations: By appointment (please email at least two to three days in advance)**

<b>COURSE OVERVIEW</b>
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This module provides students with an introduction to the fundamental concepts and tools needed to understand the emerging role of business analytics in business and non-profit organizations. Students will learn how to apply basic business analytics tools (such as R), and how to effectively use and interpret analytic models and results for making better and more well-informed business decisions. This course will provide both the organizational and technical aspects of business analytics and serves to provide students with a broad overview of how and why business analytics can be implemented in organizations, the various approaches and techniques that could be adopted for different organizational objectives and issues. This foundation is pertinent for the business analytics students in understanding how the various techniques and approaches of business analytics they learn fit together as they embark on higher level courses.

**LEARNING OUTCOMES**

1. Understand the conceptual foundations of three aspects of business analytics, namely descriptive, predictive and prescriptive analytics.
2. Understand the methodological foundations of analysis methods and techniques for business analytics.
3. Master the basic foundation to using R for data manipulation, exploration, visualization and analyses.
4. Be able to apply analytic techniques and methods on business-related data sets.
5. Understand how and why business analytics can be implemented in organizations, the various approaches and techniques that could be adopted for different organizational objectives and issues.

**COURSE MATERIALS*****Recommended References***

[JE] Business Analytics: Methods, Models, and Decisions: International Edition, 2/e or 3/e, by James Evans, Pearson, available at NUS Coop.

[UU] Business Analytics Using R - A Practical Approach by Umesh R. Hodeghatta, Umesh Nayak. Berkeley, CA: Apress : Imprint: Apress, 2017. Available at NUS library website <https://link-springer-com.libproxy1.nus.edu.sg/book/10.1007%2F978-1-4842-2514-1>.

**TEACHING MODES**

In the first six weeks of the semester, a blended mode of teaching will be used. Online synchronous lectures will be conducted in a workshop style. Students are expected to do the assigned online self-learning activities, online quiz, read assigned reading materials and any pre-lecture preparation on their own according to the

given timeline. Lectures will involve a review and discussion of key concepts and actual problem solving and application of concepts that have been taught.

In the second half of the semester (week 7-12), lecture sessions will involve an introduction, review and discussion of key concepts and use cases related to the topic(s) covered for that week. Not all contents in the textbook and readings will be covered during lecture as students are expected to read the assigned materials and do some self-learning.

Throughout the semester, tutorial sessions will be conducted to review concepts covered during lectures and provide hands-on exercises in the tutorial assignments. You are expected to make substantial contributions to the learning process through participation in class discussion, tutorials and online forums.

This course is heavily hands-on with many in-class exercises. Students are required to install R (R Studio) software on their laptops (instructions will be provided separately), and to bring laptops to all tutorial sessions. Students are expected to be able to produce professional-looking reports via RMarkdown.

## ASSESSMENT

Your final grade will be determined on the basis of the overall weighted score computed using the percentage breakdowns outlined below:

Class Participation	10%
Online Quiz	15%
Datacamp Assignments	15%
Term Assessment	20%
Final Exam	40%
<b>Total</b>	<b>100%</b>

### 1. Class Participation

Class participation includes productive contributions to classroom discussion, tutorial question problem solving, responding to questions from your peers in class or in the LumiNUS forum.

### 2. Online Quiz

Each online quiz comprises of a set of MCQ questions covering the contents in the online self-learning activities for the respective week (mainly the pre-recorded online video for self-learning). The online quiz is accessible through LUMINUS “Quiz” tool. Students have unlimited attempts to complete each quiz and the highest mark would be used for grade computation. All quizzes must be completed by the deadline for the marks to be included in the grade.

### 3. Datacamp Assignment

There will be pre-assigned assignments in Datacamp that you will need to complete. The assigned assignments cover the basics of R, RMarkdown, data manipulation and basic graphics. These assignments are meant to help you learn and practice R coding at your own pace. All Datacamp assignments must also be completed by the deadline to earn credits toward your grade. Students who are keen, may also attempt the optional assignments selected by the instructor as well as other assignments of interest to them. However optional assignments will not be awarded any credits. Optional assignments are those with due dates set as 30 June 2021, 1159pm.

### 4. Tutorial Assignment

There are a set of tutorial assignments that have been designed to help you master the contents for each topic covered in the course. The tutorial assignment will involve both conceptual questions as well as hands-on exercises that require the use of R. The purpose of this assignment is to give you a chance to practice solving the problems independently. You will not be required to submit the answers to these assignments. Instead you are responsible for attempting and completing the assignments before the tutorial sessions where the answers will be discussed.

### 5. Term Assessment

There will be a Term Assessment in week 9 on **16 Mar 6:45 – 7:45PM in LumiNUS Quiz**. This will cover all materials that have been taught from weeks 1 to 7. Like the final exam, questions may include MCQ, True/False

questions, short questions to test your conceptual understanding as well as ability to solve business analytic problems. Like many other standard computerized tests, you shall answer a randomly sequenced MCQ without navigating back to previously submitted ones. Please note NOT all questions will require or be about R coding. If you are unable to take the assessment due to a University-excused absence, please let us know **BEFORE** the assessment. In such cases, the assessment may be rescheduled based on our discretion. The format of the make-up assessment may vary from the format of the regularly scheduled assessment.

### **6. Final Assessment**

The final exam will be conducted on Thu, **29 April 1:00-3:30pm with Exemplify**. The final exam will cover all reading assignments and material covered in class and homework exercises. The final exam will comprise two parts. Part 1 of the exam consists of multiple-choice questions. In Part 2 of the exam, students need to program in R as to give short answers for structured questions. Previous years examination papers (from AY2017/18) of a similar format may be obtained from the library but do take note that the contents taught across semesters may not be the same.

## **OTHER COURSE INFORMATION AND POLICIES**

### ***Attendance and Preparation***

You are expected to attend all classes. Class sessions will provide useful information – both for understanding the topics covered in the course and for working on the project. The textbook and the other reading materials alone are not likely to be sufficient for one to do well in this course. Hence, attendance is important, albeit not graded! Class lectures will assume that all reading assignments and additional preparations have been completed. The practical and final assessments will cover materials assigned or discussed in class. You are responsible for all material covered in the course, not just during the lectures. In the event of an unavoidable absence, you are responsible for obtaining notes and assignments from fellow students.

Excused absences include, but are not limited to, death in the immediate family, serious personal or immediate family illness resulting in hospitalization, jury duty, and military service. Advance notice to the instructor is required whenever possible. Documentation substantiating the reason for absence may be requested. The instructor reserves the right to determine excused absences.

### ***Make-up Exam for Practical Assessment***

There is no makeup for Term Assessment or Final Exam, unless consulted with, and approved by the instructor prior to the exam. Refer to official university guidelines.

### ***Assignment Submission Policy and Quality Expectation***

Assignments deadline must be strictly adhered to. Late submissions will NOT be accepted. Any assignment (online quiz or datacamp assignment) completed after the deadline will be considered late and will receive NO CREDIT, unless previous arrangements have been made with the instructor. Do not remove your earlier submissions and resubmit your assignment after the deadline without prior permission from the instructor – This will also be considered as late submission.

### ***Communication Policy***

The main channel of communication outside of the classroom will be the LUMINUS announcement page and the LUMINUS forum created for this course. Important announcements about the course administration (e.g., change in assignment due dates, practical assessment details, etc.) would be made through LUMINUS announcement. So be sure to check the LUMINUS announcement/forum page frequently, or subscribe to receive email notifications when any announcement/forum posting has been posted.

**All class related discussions should be conducted on the LUMINUS forum page.** If you have any questions, suggestions or comments regarding assignments or the course please post them on the forum rather than emailing the instructor. The reason for not using email is because many times, the issues one student faces is relevant to other students as well. Hence by sharing ideas and thoughts on the forum, we avoid duplicated questions and answers and everyone can learn from one another. The forum may also be used to share any news and articles relevant to the course. The instructor and TA will not respond to your email on the above related discussions or questions and will instead request that you post them on the forum before responding.

If you have any issues or questions that you want to discuss with the instructor privately, you may email the

instructor or TA.

**LUMINUS.** This will be used as the one-stop course website. All lecture notes, assignment handouts, and other course related documents will be made available through the course website. Grades for assignments will be released via Gradebook once grading is completed. Other features of LUMINUS used for this course like Quiz, Forum, have been described in other sections.

### ***Academic Misconduct***

Academic misconduct (e.g., cheating on exams / assignments, plagiarism, etc.) will not be tolerated in any shape or form. If caught copying other student's work, both the original work and the copied one will not receive any credit. Due to the competitive nature of this course and to insure fairness to all students in the various sections, students may not share ANY information regarding exams, assignments, etc. unless given permission to do so by the course instructor. You should not share any information regarding exams or tutorial discussions, nor should you use information from previous semesters. Discussion of course materials is encouraged, but the end product of each assignment is expected to be your own individual effort. If you have questions or need help at any time, please contact the instructor or TA. For any case of cheating and plagiarism, the instructor will strictly follow and enforce the university policies.

While the course grades may vary, all students are expected to make an "A" in integrity and honesty. You are honor-bound to conduct yourself in a manner that reflects fair play and personal and institutional honor and integrity. It is your responsibility to contact the instructor with any question of what constitutes appropriate ethical behavior.

### ***Students with Special Needs***

If you have a disability that may prevent you from fully demonstrating your abilities, you should let the instructor know, as soon as possible, so that appropriate accommodations necessary to ensure full participation and facilitate educational opportunities can be arranged.

### ***Course Feedback/Suggestions***

I am always looking to improve or make this course better. So if you have any feedback or suggestions related to the course, please feel free to drop me an email or come speak to me any time during the course.

***All the best! Wishing you a fruitful and enjoyable learning experience in this course!***