



Sungkyunkwan University (SKKU) International Summer Semester (ISS) 2019

## Data Science and Management

Prof. Dongwon Lee, Penn State University, USA

### SHORT COURSE DESCRIPTION

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This course will introduce fundamental knowledge on relational databases and new issues/techniques related to managing (large-scale) non-relational data. It will advance students' knowledge in relational database and their skills in using SQL and database indexing, and introduce NoSQL databases such as document-oriented database (e.g., MongoDB), key-value database (e.g., Redis), column-oriented database (e.g., HBase), and graph database (e.g., Neo4j). Students are expected to have basic knowledge in programming in a language such as Python or Java.

### READING MATERIALS

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The class does not have a required textbook. All course materials will be drawn from sources available on the Internet.

### COURSE REQUIREMENTS AND GRADING

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Students undertaking this course will be graded pass/fail, with a pass being a grade of 60 or above out of 100. SKKU regulations require students to attend at least 80% of all classes, and students who fail to meet this requirement will be graded fail. Students found guilty of academic dishonesty will be automatically graded fail. The final mark for the course will be based on the following assessment modes: Class attendance & participation: 10%, Project & presentation: 40%, and Final exam: 50%.

### COURSE SCHEDULE

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#### – WEEK I –

Thursday (27 June): Introduction and Overview

Friday (28 June): Relational Model and RDBMS

#### – WEEK II –

Monday (1 July): Basic SQL

Tuesday (2 July): Advanced SQL

Wednesday (3 July): Advanced SQL

Thursday (4 July): Project Discussion

#### – WEEK III –

Monday (8 July): NoSQL Foundation

Tuesday (9 July): Key-value DB

Wednesday (10 July): Graph DB

Thursday (11 July): Graph DB

– WEEK IV–

Monday (15 July): Document-Oriented DB

Tuesday (16 July): Document-Oriented DB

Wednesday (17 July): Column-oriented DB

Thursday (18 July): Project presentation

Friday (19 July): Final exam and wrap-up