

**Korea Advanced Institute of Science and Technology**  
**BAF 507E**  
**Financial Databases**  
Spring 2024 (2nd Half)

Class Hours: 2:30 p.m. - 3:50 p.m. on Tuesdays and Thursdays

Room: Supex 103

Professor: Inmoo Lee

Tel.: 958-3441

Office:324 Supex Hall

Office Hours: 1:30-2:20 p.m. on Tuesdays and by appointments

E-mail: inmooL@kaist.ac.kr

<http://klms.kaist.ac.kr>

Teaching Assistants: Byunghun Han (email: bhhan731@kaist.ac.kr)

**Course Objectives:**

This course introduces a number of financial databases that are widely used to analyze various financial issues. Two main databases to be covered are LSEG Workspace and Bloomberg. In addition, the course will introduce a database language, SQL, to students. To run SQL, pandasql in Python will be used. The course requires many practices of downloading the data from various sources and analyzing the downloaded data using SQL and Python. The course will be taught in English and all discussions and presentations should be made in English.

**Required Materials:**

Course materials available on the course website at KLMS.

**Database Help Desk**

Everyone is required to practice downloading the data from the databases covered in the classroom and use pandasql in Python to manipulate the data. For this course, you should use Python, which is available through Anaconda Navigator from <https://www.anaconda.com/distribution/>. In the course, JupyterLab notebooks are distributed for your reference. From Mondays to Thursdays, there will be someone to help you with the use of databases at the KOSCOM Data Center on the third floor (Hours are posted at the help desk).

## Contact Information

Anyone is welcome to stop by my office during the office hours to discuss any class related issues. I strongly encourage students to contact me even outside my regular office hours whenever a more clear explanation for a covered topic is necessary. The best way to communicate is through email. For this course, TA's role is limited to help us with class logistics, not to help students with the contents of the class. **All course materials and contents related questions should be directed to me.**

## Grading Policy

1. Exam (40%)
2. One Group Assignment (10%)
3. Bloomberg Certificate (15%)
4. Final Group Project and Presentation (25%)
5. Participation and Attendance (10%)

**F will be given when one misses classes more than four times. You should turn on the video during the class to be counted as "attending the class", when the class is held online.**

## Bloomberg Certificate

You are required to finish all BMC (Bloomberg Market Concepts) courses (Getting Started on The Terminal, Economic Indicators, Currencies, Fixed Income and Equities) and submit the certificate by **May 21**. You should sign up **Bloomberg for Education** with **your own name and email address** so that the certificate should be under your name. Please login your Bloomberg account and type "BCER" to go to the page that explains BMC. You should sign up to create your account. When you login after your sign up, please use the class code, "L5BN6QXG4M", so that I can monitor your progresses. This requirement will take care of 15% of your total grade. This is an **individual** work.

## Exam

Exam is an in-class exam. Everyone is allowed to bring a cheat-sheet in which anything to be referenced during the exam can be **hand-written in one-side** of an A4 size paper. Students who violate this rule will receive only **50%** of exam scores. The exam will cover both SQL (run in Python) and databases covered in the class. You should be able to write some basic SQL programs in Python and understand the commands used to retrieve information from various databases for your group assignment and the final project.

## Assignment

Everyone will be asked to join a group of 4 (or 5) students on the first day of the class. Each group is responsible for the submission of the group report for the assignment. The assignment should be submitted through an email **by 7:00 a.m.** on the due date. Groups submitting the assignment after a due time will receive a partial or zero score depending on the time submitted. For a late submission, **20% of the score will be deducted for each one-hour-bracket after 7:00 a.m.** For example, if an assignment is submitted at 9:10 a.m., then 60% ( $= 20\% \times 3$ ) of the score will be deducted from the graded score (i.e., if the score without a penalty is 90, then the final score will be  $36 (= (1 - 60\%) \times 90)$ ). This means that **an assignment submitted after 12:00 p.m. will receive a zero score.** When you submit the assignment through an email, please use the following file naming rule for the attachment: File name should be in the following format: **Group\_#\_Ass** (for example, for the group, **1**, and for the assignment **1**, **Group\_1\_Ass**).

## Final Group Project & Presentation

The final group project is composed of two parts: 1) **Company analysis**; and 2) **Portfolio analysis**. You have to use pandasql in Python for the second part. *First*, each group is responsible for choosing **one foreign company and one Korean company** and collecting the data on those two companies from various sources. You have to write analyst research reports for those two companies. You can certainly reference available reports prepared by financial analysts but you **have to list the references and sources whenever you reference others**'. In addition, you have to include your own analysis in addition to others. *Second*, you have to choose

**twenty largest companies in a country of your choice and twenty largest Korean companies** as of **December 31, 2013** based on the market capitalization on that date. **Form value-weighted portfolios** of the following three **at the end of 2013**: 1) Foreign; 2) Korean; and 3) Foreign plus Korea. Calculate the **monthly returns** of three portfolios **until the end of December 2023** and then report the following: 1) **Arithmetic and geometric average** returns of portfolios; 2) **Standard deviation** of returns of portfolios; 3) **Correlation coefficients** of three portfolios; 4) **Beta estimates** of portfolios after running **the market model** (similar to the CAPM Model but without risk free rates being subtracted) regressions using relevant market portfolio proxies; and 5) **Figure showing cumulative returns** of three portfolios over the period **from Jan. 2014 to Dec. 2023**. One thing to note is that **the returns should be in US dollars**. You have to explain the sources of the data and include the programs used to analyze the data. Each group is responsible for the submission of a final group report on those two items. The report should be **no longer than 20 pages (double spacing with at least 10 pts)** including all exhibits. In addition, each group should prepare a **15-minute presentation** at the end of the semester. Most groups with adequate preparation and good presentations will get 17 points. Groups with very thorough analyses and creative ideas with good presentations will get 20 points. Groups with poor preparations but good presentations will get 13 points. Groups with poor presentations will get 3 points off from the above mentioned points. Each group should notify me of the names of the companies for the first part and the name of a foreign country for the second part of the final project through an email by **May 14**. The due date for the submission of the report together with presentation materials is **May 30 (by 7: a.m. as for the assignments)**. When you submit the final report through an email, please use the following rule for the attached file: File name should be in the following format: **Group\_#\_FP** (for example, for the group, **1, Group\_1\_FP**).

### **Participation & Attendance**

Most students with regular participation and attendance will get 7 points out of 10. Students with very active participation and perfect attendance will get 10 points. Students with no participation or many absences will get 2 point.

## Group Management

Each member of a group is expected to motivate others to actively work on class assignments and the final project. To discourage someone from shirking, **a peer evaluation** will be done during the exam to identify those who are obviously free-riding. Those who receive **the worst evaluation (1 out of 5) from all other members will get zero scores** for all group assignments. Those who receive the worst evaluation from the majority of group members will receive only 70% of the scores received by the group for all group assignments.

## Course Schedule

The following summarizes topics and articles to be covered in each class during the semester. Both topics and articles to be covered are **subject to change**. Any changes made will be posted in the course website.

Week	Topic	Due Date
1W (4/23, 25)	Introduction, Python and SQL Financial Data Sources and Workspace	
2W (4/30, 5/2)	Finance Topic: IPOs and SEOs Ritter (2003, North-Holland Chapter 5)	
3W (5/7, 9)	Workspace and SQL (Join and BHR)	<b>Ass 1 (5/9)</b>
4W (5/14, 16)	SQL (Port. and Event Time Port) & Bloomberg	<b>Final Report Topic (5/14)</b>
5W (5/21, 23)	Bloomberg (Excel)	<b>Bloomberg certificates (5/21)</b>
6W (5/28, 30)	Bloomberg (API) & Term Project Presentation	<b>Final Group Project (5/30)</b>
7W (6/4)	Term Project Presentations & Wrap up	<b>No class on 6/6</b>
8W (6/13)	Exam (6/13)	<b>Final Exam (6/13)</b>