2021학년도 1학기 [데이터과학(영강)] 강의계획서

◆ 수업정보 ◆

[수업정보]

시간/강의실	월(1) 정보통신관 202호 수(1) 정보통신관 202호		
학점	3학점	학수번호(분반)	COSE471(00)
이수구분	전공선택		

[강의담당자]

성명	김진규	소속	컴퓨터학과
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면담시간			

[조교정보]

성명		소속	
E-mail			
연구실		연락처	

◆ 수업운영 ◆

[수업방법]

활동유형	강의, 실습
출석확인자율화	Y
무감독시험	N

[평가방법]

항목	점수	항목	점수
Assignment	30 점	Projects	20 점
Midterm Exam	20 점	Final Exam	30 점
총점	100 점		
평가점수공개여부	비공개		

[핵심역량]

공감	의사소통	윤리	사회공헌	전문가	통합	창의	문제해결	다문화	갈등통합	자기실현	변화주도

◆ 학습계획 ◆

▶ 과목개요

Data science is redefining how people solve challenging problems and understand their world. In this class, we explore key principles and techniques of data science through the dual lens of computational and inferential thinking. These include algorithms for exploratory data analysis; machine learning methods including regression, classification, and clustering; statistical concepts of measurement error and prediction; and techniques for scalable data processing.

▶ 학습목표

By the end of this course, you will learn key areas of data science including question formulation, data collection and cleaning, visualization, statistical inference, predictive modeling, and decision making with a strong emphasis on data-centric computing. These techniques you learn in this course apply to a wide variety of CV, AI, and ML problems and will serve as the solid foundation for further study or careers in any application area you choose to pursue.

▶ 추천 선수과목 및 수강요건

Prior computer programming experience is expected. We do not assume that students have previous experience with data science, machine learning and/or artificial intelligence, but we do expect you to learn the basics very rapidly.

▶ 수업자료(교재)

Lau, Gonzalez, and Nolan, Principles and Techniques of Data Science,
https://www.textbook.ds100.org/intro.html

▶ 지정도서 및 참고문헌

지정도서	참고도서명	저자명	출판사	출판년도	ISBN

▶ 과제물

Programming and Reading assignments.

▶ 주별학습내용

주	기간	회차	학습내용	교재	활동 및 설계내용
1	03.02 - 03.08	1	Introduction and Course Overview		
2	03.09 - 03.15	1	Probability and Data Design		
3	03.16 - 03.22	1	Introduction to Pandas Syntax		
4	03.23 - 03.29	1	Data Cleaning and Exploratory Data Analysis		
5	03.30 - 04.05	1	Regular Expressions, Working with Text		Project #1
6	04.06 - 04.12	1	Visualization		
7	04.13 - 04.19	1	Modeling and Estimation		
8	04.20 - 04.26	1			중간고사
9	04.27 - 05.03	1	Regression		

주	기간	회차	학습내용	교재	활동 및 설계내용
10	05.04 - 05.10	1	Feature Engineering; Bias and Variance		
11	05.11 - 05.17	1	Cross-validation; Regularization; Gradient Descent		
12	05.18 - 05.24	1	Logistic Regression		Project #2
13	05.25 - 05.31	1	Decision Trees		
14	06.01 - 06.07	1	Principal Component Analysis; Clustering		
15	06.08 - 06.14	1	Special Topics in Data Science		
16	06.15 - 06.21	1			기말고사

▶ 기타 (설계관련사항 포함)

Updates:
- COSE471 will be a live online class due to COVID-19.
- We will have the offline midterm/final exams. However, if the need to forgo an in-person exam arises, switching to a programming project is preferable.