Syllabus

Search

ITD6037-MM (2ND SEMESTER, 2021)

연세대학교 YONSEI UNIVERSITY

Created Date	2021-08-11 20:24:35	Last-Modified	2021-08-11 20:32:54
Course Title	Data Mining	Credit	3
Location	CHJ468/	Time	Thu7,8,9/Thu7,8,9

Instructor	Sung Tae-Eung	Department	SWDH융합대학 소프트웨어학부
Office	창조관 269호	Telephone	033-760-2393
e-mail & Office Hour	tesung@yonsei.ac.kr, O/H will be announced later on.		

Target Students	Graduate students in the department of Computer Science
Course Description & Goals	Learn data analysis techniques such as `Python` or `R` utilizing real data while understanding fundamental concepts of data mining. - Covers multiple/logistic regression, discriminant analysis, tree-based method(decision-making tree), k-nearest neighbor classification, clustering, neural networks, Bayesian classification, association rules, etc. - Review papers on data mining, and learn insights from applied practices
Prerequisite	
Course Requirements	Lecture / Practices
Grading Policy	Mid-term or Seminar presentation: 30% Final exam : 50% Attendance(/homeworks) : 20%
Texts & References	○ 데이터마이닝 기법과 응용/전치혁/한나래아카데미/2012 ○ An introduction to statistical learning : with applications in R/James, Gareth (Gareth Michael)/Springer/2013 ○ Main textbook: 데이터마이닝 기법과 응용 (전치혁, 한나래출판사, 2015) References: 제대로 알고 쓰는 R 통계분석 (이윤환, 한빛아카데미, 2016) RapidMiner로 배우는 데이터사이언스 (김병수 외, 생능출판, 2020) *참고용: An Introduction to Statistical Learning With Applications in R (Gareth James 외, Springer, 2013)
Instructor's Profile	Sung, Tae-Eung Associate professor in the department of CS tesung@yonsei.ac.kr
TA's Name & Contact Information	TBA
Syllabus in English	Learn primary theories and practice use skills on data mining, including multiple/logistic regression, discriminant analysis, tree-based method(decision-making tree), k-nearest neighbor classification, clustering, neural networks, Bayesian classification, association rules, etc.

Week	Period	Weekly Topic & Contents	Course Material Range	Reference

			& Assignments	
1	2021-08-30 2021-09-05	Introduction of Datamining and its applications Ch2. Regression - Multiple Regression Models, Estimation and Prediction to Responses		(8.30.) Fall semester classes begin (9.3. - 9.7.) Course add and drop period
2	2021-09-06 2021-09-12	Ch3. Principal Component Analysis (PCA) - Principal Component Score, Squared Sum Decomposition, Principal Component Regression Analysis		(9.3. - 9.7.) Course add and drop period
3	2021-09-13 2021-09-19	Ch4. Partial Least Squared Regression Analysis - Single/Multiple Dependent Variables PLS Regression Analysis		
4	2021-09-20 2021-09-26	Ch5. Classification Analysis - Nearest Neighbor Classification, Naive Bayesian Classification method		(9.20. - 9. 22.) Chuseok Holidays
5	2021-09-27 2021-10-03	Ch6. Logistic Regression Analysis - Binary/Ordinal/Nominal Logistic Regression Models		(10.3.) National Foundation Day
6	2021-10-04 2021-10-10	Ch7. Discriminant Analysis - Fisher's method, Decision-based Classification Rules		(10.4. - 10.6.) Course withdrawal period (10.9.) Hangul Proclamation Day
7	2021-10-11 2021-10-17	Ch8. Tree-based Method - Overview of Classification and Regression Tree (CART), Tree formation and Selection of Final Tree		
8	2021-10-18 2021-10-24	Mid-term Exam		(10.18. - 10.22.) Midterm Examinations
9	2021-10-25 2021-10-31	Ch9. Support Vector Machine (SVM) - Linear/Non-linear SVM		
10	2021-11-01 2021-11-07	Ch10. Performance Evaluation of Classification Rules - Accuracy/Sensitivity/Specificity, Receiver Operating Characteristic (ROC) curves		
11	2021-11-08 2021-11-14	Ch11. Clustering Analysis - Similarity measure among objects, Similarity of categorical objects		
12	2021-11-15 2021-11-21	Ch12. Non-hierarchical Clustering Method - Clustering algorithm of Linkage method, Ward's Method Ch13. Non-hierarchical Clustering Method - K-means Algorithms, K-medoids		
13	2021-11-22 2021-11-28	Ch14. Evaluation and Analysis of Clustering Solution - External/Internal Index Ch15. Association Rules		

		- Sequential Pattern Exploration Algorithms, Sequences		
14	2021-11-29 2021-12-05	Seminar Presentation (I)		
15	2021-12-06 2021-12-12	Seminar Presentation (II)		(12.6. - 12. 10.) Self-study period
16	2021-12-13 2021-12-19	Final Exam		(12.13. - 12.17.) Final Examinations

* Changes in Management of Academic Semester
During the midterm examinations (2022.10.20. - 10.26.) and final examinations (2022.12.15. - 12.21.) period, classes or self-study should be continued unless there is an exam scheduled during the week.
* According to the University regulation section 57-2, students with disabilities can request special support related to attendance, lectures, assignments, or exams by contacting the course professor at the beginning of semester.Upon request, students can receive such support from the course professor or from the Center for Students with Disabilities(OSD). The following are examples of types of support available in the lectures, assignments, and exams:
(However, actual support may vary depending on the course.)
[Lecture]
- Visual Impairment: alternative, braille, enlarged reading materials, note-taker
- Physical Impairment: alternative reading materials, access to classroom, note-taker, assigned seat
- Hearing Impairment: note-taker/stenographer, recording lecture
- Intellectual Disability/Autism: note-taker, study mentor
[Assignments and Exam]
- Visual, Physical, Hearing Impairment: extra days for submission, alternative type of assignment, extended exam time, alternative type of exam, arranging separate exam room, and proctors, note-taker
- Intellectual Disability/Autism: personalized assignments, alternative type of evaluation