

## Course Schedule Information

Course Code／時間割コード	331220
Semester／開講区分(開講学期)	Spring and Summer Term
Day and Period／曜日・時間	Mon3
Course Name (Japanese)／開講科目名	知能と学習
Room／教室	Others
Course Name／開講科目名(英)	Intelligence and Learning
Capacity／定員	100
Course Numbering Code／ナンバリング	33BIEN6F215,33INPS6F215,33COSC6F215,33INSE6F215,33INNE6F215,33MUEN6F215
Credits／単位数	2.0
Student Year／年次	1,2
Instructor／担当教員	Masayuki Numao

## Detailed Syllabus Information

Course Name／講義題目	Intelligence and Learning
Language of the Course／開講言語	Japanese/English
Type of Class／授業形態	Lecture Subject
Course Objective／授業の目的と概要	Artificial Intelligence (AI) pursues intelligent computers. Computers are now so intelligent that one has already defeated the World Champion in chess several times, communicates with its user in English or Japanese, discovers a new knowledge from a huge data file, and designs a picture and a music piece. This lecture lays the foundation of such technologies where adaptation and learning are crucial. Data Mining is also discussed from the view point of AI and Machine Learning.
Learning Goals／学習目標	Students can discuss what the source of intelligence is. They can program some simple AI. They learn Machine Learning and Data Mining from the view point of AI, and can use their tools and write their simple programs.
Requirement / Prerequisite／履修条件・受講条件	1. What is Artificial Intelligence and Machine Learning? 2. Learning with Decision Trees 3. Rule-Based Systems and Rule Learning 4. Naive Bayes and Nearest Neighbor 5. Association rules and their learning 6. Clustering 7. EM algorithm 8. Support Vector Machine 9. Predicate Logic 10. Inductive Logic Programming and Relational Mining 11. Version Spaces and Explanation-Based Learning 12. Preprocessing and Data transformation for Data Mining 13. Feature Selection 14. Feature Construction and Predicate Invention 15. Ensemble Learning
Class Plan／授業計画	Students will do some home works and write some papers.
Independent Study Outside of Class／授業外における学習	Slides are distributed.
Textbooks／教科書・教材	Russell and Norvig: Artificial Intelligence - A Modern Approach Fourth Edition, Prentice Hall (2020).
Reference／参考文献	Final 50%. Papers 30%. The number of questions counted during each class period 20%.
Grading Policy／成績評価	The slides are uploaded on CLE. Online lectures on CLE will start from 13:30 every Monday from April 12.
Other Remarks／コメント	Face-to-face lecture in room: F-482, The Institute of Scientific and Industrial Research ① in <a href="https://www.sanken.osaka-u.ac.jp/en/access/">https://www.sanken.osaka-u.ac.jp/en/access/</a>
Special Note／特記事項	Monday 15:00-17:00
Office Hour／オフィスアワー	Think what is intelligence. Please ask a question during a class period in public.
Messages to Prospective Students／受講生へのメッセージ	

### Cautions for Students