科目ナンバリング	U-LAS30 10034 LE12　U-LAS30 10034 LE11　U-LAS30 10034 LE10						
授業科目名 <英訳>	Basics of Informatics and AI-E2 Basics of Informatics and AI-E2			担当者所属 職名・氏名	情報学研究科 特定准教授 HADFI Rafik		
群	情報学科目群		分野(分類)	(基礎)		使用言語	英語
旧群		単位数	2単位	週コマ数	1コマ	授業形態	講義（対面授業科目）
開講年度・開講期	2026・前期	曜時限	水5	配当学年	全回生	対象学生	全学向

[授業の概要・目的]

Conducting state-of-the-art research across diverse fields of science, technology, and the liberal arts demands fundamental computer skills and the ability to effectively process, use, and analyze a wide range of information. This lecture covers the basics of information literacy and use, including how to collect, organize, search, manage, analyze, present, and visualize information. In addition, the course provides an overview of essential computational and AI techniques for extracting knowledge from data. It introduces how to apply these methods across a range of research fields.

[到達目標]

Students will learn the fundamentals of information retrieval, processing, analysis, and presentation. In addition, they will understand when and how to use computational and AI techniques to solve diverse problems.

[授業計画と内容]

- Processing and management of information (about 7 classes)
This part covers topics related to the automatic analysis and processing of information, information retrieval (search engines), and storage (relational databases).

- Analysis of information (about 4 classes)
This part covers core methods for data analysis, including practical data mining techniques (association rules, clustering, and decision trees), as well as machine learning approaches (supervised, unsupervised, and reinforcement learning). It also introduces basic model evaluation concepts such as validation and overfitting, and discusses the responsible use of machine learning.

- Representation of information (about 2 classes)
This part covers topics related to information acquisition by computers (e.g., analog and digital data, multi-media, sampling theorem) and information representation (coding, entropy, Huffman coding, and mutual information).

- Information design (about 1 classes)
This part will cover the fundamentals of data visualization and information design, focusing on clear communication through common plots and information graphics (bar and scatter plots, treemaps, and network visualizations). This class also introduces basic design principles and briefly touches on visualizing machine learning results.

Total：14 classes, 1 feedback session.

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Basics of Informatics and AI-E2(2)

[履修要件]

特になし

[成績評価の方法・観点]

Grading will be based on the evaluation of submitted reports for each assignment. All assignments will be available via the LMS system.

[教科書]

使用しない

All lecture slides will be available on the LMS system.

[参考書等]

（参考書）

Introduced during class.

[授業外学修（予習・復習）等]

Students will review materials after classes based on the lecture slides.

[その他（オフィスアワー等）]

No office hours are specified. E-mail: rafik.hadfi@i.kyoto-u.ac.jp

[主要授業科目（学部・学科名）]