

科目ナンバリング		U-LAS30 10020 SE10							
授業科目名 <英訳>		Practice of Basic Informatics-E2 Practice of Basic Informatics-E2			担当者所属 職名・氏名		工学研究科 講師 Tam Willy Nguyen		
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	演習 (対面授業科目)		
開講年度・ 開講期	2025・前期		曜時限	金2		配当学年	主として1回生	対象学生	全学向
[授業の概要・目的]									
<p>Information and Communication Technology (ICT) skills are essential for academic success and professional development. This course provides a comprehensive introduction to informatics, equipping students with practical skills and theoretical knowledge in:</p> <ol style="list-style-type: none"> 1. Computer Basics & UNIX Systems: Understanding operating systems, UNIX-based environments (Terminal, Shell, Command Line, vi, emacs), and essential software tools. 2. Network Fundamentals & Security: Learning about network structures, TCP/IP protocols, and information security. 3. Academic Information Retrieval & Content Creation: Using Excel, Python, LaTeX, MATLAB, gnuplot, and MAPLE for academic writing, data processing, and technical reporting. 4. Programming & Data Science: Implementing algorithms using Python in Google Colab, with a focus on scientific computing and visualization. 5. Artificial Intelligence & Machine Learning: Exploring Neural Networks, Data Science, Generative AI, and their applications through e-learning modules. <p>Through lectures, hands-on exercises, and interactive discussions, students will develop the ability to use, manage, and further expand their informatics knowledge independently.</p>									
[到達目標]									
<p>By the end of the course, students will be able to:</p> <ol style="list-style-type: none"> 1. Understand computer fundamentals including operating systems, UNIX environments, and essential software tools. 2. Analyze and process data using Excel, Python, and scientific computing tools (LaTeX, MATLAB, gnuplot, MAPLE). 3. Apply programming concepts to solve problems in Python via Google Colab. 4. Explain fundamental networking concepts including TCP/IP, LAN/WAN, and internet protocols. 5. Engage with artificial intelligence and data science, including machine learning and Generative AI, through e-learning modules. 6. Independently acquire new informatics skills to support ongoing academic and professional needs. 									
[授業計画と内容]									
<p>Week 1</p> <p>Computer Basics & UNIX Systems</p> <ul style="list-style-type: none"> - Course Introduction - Operating Systems Overview - UNIX Terminal (Shell, vi, emacs) <p>Week 2-3</p>									
<div>----- Practice of Basic Informatics-E2(2)へ続く -----</div>									

Practice of Basic Informatics-E2(2)

Network Fundamentals & Security

- University Networks
- TCP/IP
- LAN/WAN
- Internet Protocols
- Information Security & Ethics

Week 4

Academic Information Retrieval

- Digital Libraries
- Information Search Strategies

Week 5-8

Scientific Computing & Content Creation

- Data Processing in Excel & Python
- Academic Report Writing (Word, LaTeX, gnuplot, MATLAB, MAPLE)
- Presentation Techniques

Week 9-11

Programming & Algorithmic Thinking

- Python Basics (Google Colab)
- Jupyter Notebooks
- Data Visualization

Week 12-13

Artificial Intelligence & Machine Learning (E-learning component)

- Neural Networks
- Machine Learning
- Generative AI
- Data Science Fundamentals

Week 14

Feedback & Final Project Submission

- Review and Student Presentations

Note: The AI & Data Science module will be delivered through e-learning, with scheduled online Q&A sessions to assist students.

【履修要件】

- No formal prerequisites.
- Basic familiarity with computer operations and high-school mathematics is helpful but not required.
- Students must have access to a personal computer to complete assignments and online modules.

【成績評価の方法・観点】

Student performance will be assessed as follows:

1. Active Participation (15%) Engagement in hands-on exercises, discussions, and UNIX system use.

Practice of Basic Informatics-E2(3)へ続く

Practice of Basic Informatics-E2(3)

2. Assignments & Reports (85%) Academic writing, programming exercises, data processing reports, and presentation assignments.

【教科書】

H. Kita, Y. Kitamura, H. Hioki, H. Sakai, and D. Lin 『The Practice of Basic Informatics 2024』 (Kyoto University)

The textbook is provided online via the university system.

【授業外学修（予習・復習）等】

To maximize learning outcomes, students are expected to:

1. Pre-read materials before lectures to familiarize themselves with key concepts.
2. Engage in hands-on practice with programming exercises and scientific computing tools.
3. Complete assignments and submit reports on time via PandaA.
4. Participate in the AI/Data Science e-learning modules and attend scheduled online Q&A sessions.
5. Regularly review notes and refine their informatics skills throughout the semester.

【その他（オフィスアワー等）】