

Category (科目区分)	Cluster of Social Medicine System		
Course Title (授業科目名)	Medical Information System Practice		
Instructors (担当者名)	Tetsuya Otsubo	Academic Year (配当年次)	1,2
Required course / Elective Course (必修/選択)	Elective Course	Credits (単位数)	1
Class Format (授業形態)	Lecture, Exercise (1-9), Webclass on demand (10)		
Schedule (開講期間)	September 2026 ~ October 2026 (details of the schedule can be negotiated)		
Class Date/Period (開講曜日・時間)	Every Tuesday, 18:00-21:00 (details of the schedule can be negotiated)		
Course Outline/ Course Objectives (授業の概要・到達目標)			
<p>Course Outline: This course provides a comprehensive understanding of the knowledge and practical skills required to utilize real-world data effectively within medical information systems.</p> <p>Course Objectives: By the end of this course, students will be able to apply the acquired knowledge and operational skills to analyze and manage real-world data in medical information systems.</p>			
Course Planning (授業計画)			
	Course Outline/ Course Objectives (授業の概要及び到達目標) (Contents of Class) ((授業内容))	Instructor (担当教員名)	Department (講座名) Class Room [実施場所]
1	General Overview of Real-World Data. This provides an overview of real-world data in medical information systems, incorporating recent trends and developments.	Professor. Tetsuya Otsubo	Department of Medical Informatics [Division of Medical Informatics Conference Room, Wing No.1 of the University Hospital B1F]
2	Preprocessing of Real-World Data Using R This lecture covers the preprocessing of real-world data through hands-on exercises using R.	Professor. Tetsuya Otsubo	Department of Medical Informatics [Division of Medical Informatics Conference Room, Wing No.1 of the University Hospital B1F]
3	Manipulation of Real-World Data Using R This lecture covers the processing of real-world data through hands-on exercises using R.	Professor. Tetsuya Otsubo	Department of Medical Informatics [Division of Medical Informatics Conference Room, Wing No.1 of the University Hospital B1F]
4	Digital image processing in medical information (part 1) Medical imaging today is generally based on computerized digital images. This lecture will cover the basic concepts of digital imaging and computer image processing, including basic concepts, image compression, and digital image processing algorithms.	Associate Professor Masayuki Katahira	Department of Medical Informatics [Computer Room, Reserch Building for Basic Medicine 1F]
5	Digital image processing in medical information (part 2) In this exercise, students will actually experience the various digital image processing techniques learned in the 8th lecture, using several sample images.	Associate Professor Masayuki Katahira	Department of Medical Informatics [Computer Room, Reserch Building for Basic Medicine 1F]

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6	Fundamentals of Python, Preprocessing of Multiple Data Files, and Spreadsheet Operations Students will learn basic Python operations and how to design algorithms using functions. Through hands-on exercises with sample datasets, they will practice reading and merging large numbers of files, as well as processing and transforming tabular data.	Assistant Professor Ryota Hosomi	Department of Medical Informatics [Division of Medical Informatics Conference Room, Wing No.1 of the University Hospital B1F]
7	Data Visualization with Python Using sample datasets, students will engage in practical exercises to create graphs and perform image rendering and basic image processing.	Assistant Professor Ryota Hosomi	Department of Medical Informatics [Division of Medical Informatics Conference Room, Wing No.1 of the University Hospital B1F]
8	Processing Waveform Data with Python Students will explore the characteristics and processing methods of digitized waveform data through hands-on exercises using sample datasets.	Assistant Professor Ryota Hosomi	Department of Medical Informatics [Division of Medical Informatics Conference Room, Wing No.1 of the University Hospital B1F]
9	Introduction to Machine Learning with Python Students will implement basic machine learning methods and gain an understanding of how machines learn from data through step-by-step computational processes.	Assistant Professor Ryota Hosomi	Department of Medical Informatics [Computer Room, Reserch Building for Basic Medicine 1F]
10	General discussion and report writing In this class, a comprehensive discussion will be held to summarize the entire course. And students will be required to write a report on a topic chosen in advance from among the contents studied in this course.	Professor. Tetsuya Otsubo	Department of Medical Informatics [Not limited to a specific venue]
Grading Criteria (成績評価の基準と方法)			
A total of 45 hours (30 hours of class lectures and excersizes + 15 hours of out-of-class study) constitutes one unit. Grading will be decided comprehensively based on attitude, report, and participation.			
Contact Information (問い合わせ先(氏名, メールアドレス等))			
Name: Ryota Hosomi / E-mail: ryota-hosomi@hos.akita-u.ac.jp			
Comment (その他特記事項)			
<p>Message:</p> <p>For working graduate students who are unable to attend due to work commitments, etc., the schedule can be adjusted. Therefore, students who wish to take this course must contact the person in charge of the course in advance.</p> <p>Textbook/Reference Books: Materials will be distributed or references will be specified as necessary.</p> <p>Out of Class Study: Students are expected to do preparatory studies according to the objectives and contents of each class.</p>			