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Syllabus Reference

Course title	Bioinfomatics		
Term	後期 2nd Half		
Credit(s)	1		
The main day		The main period	
Program/Department	47 Basic Biology		
Lecturers	S. Shigenobu, I. Uchiyama, M. Nozawa		
成績評価区分 Grading Scale	A,B,C,Dの4段階評価 Four-grade evaluation		
レベル Level	Level 2		
力量 Competence	專門力 Academic expertise		

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Full name
* SHIGENOBU SHUJI
UCHIYAMA IKUO

Outline	Mainly focusing on sequence data analyses, both theoretical background and practical skills of basics bioinformatics are introduced through lectures and hands-on tutorials. Also, students can learn how to apply bioinformatics to genome and transcriptome analyses. This is a two-day intensive course involving both lectures and hands-on.
Learning objectives	<ul> <li>The following three objectives are attained through lectures and hands-on tutorials.</li> <li>1. Understand basic principles in biological sequence analyses.</li> <li>2. Master basic skills for genomic and transcriptomic analyses.</li> <li>3. Learn the current state of genomics and bioinformatics research, and discuss the prospects for life science in the Big Data era.</li> </ul>
Grading policy	In addition to sufficient attendance to the lecture, students must complete an assignment to get credit for the course. Activity in the lectures and tutorials: 50%; An assignment 50%.
Lecture Plan	This is the 2-day intensive course. November 1st (Wed), 2023 — November 2nd (Thu), 2023 Place: TBA (@NIBB) Day 1 #1: Introduction / Biological sequence analysis 1 (pairwise alignment) #2: Biological sequence analysis 2 (multiple alignment, motifs) #3: Biological sequence analysis 3 (molecular evolution) #4: Genome analysis 1 (genome assembly and gene prediction) Day 2 #5: Genome analysis 2 (gene annotation and ortholog analysis) #6: Transcriptome analysis 1 (RNA-seq and other omics technologies) #7: Transcriptome analysis 2 (clustering, multivariate analysis) #8: Biological databases and current topics (big data and AI in biology) Lecturer: Dr. Shuji Shigenobu (SOKENDAI / NIBB), Dr. Ikuo Uchiyama (SOKENDAI / NIBB), Dr. Masafumi Nozawa (Tokyo Metropolitan Univ: visiting lecturer)
Location	National Institute for Basic Biology (Room: TBA)
Language	English
Textbooks and references	No specific literatures are recommended. Familiarity with basic UNIX command line operations is recommended.

Syllabus Reference

Notes for students of other programs	Students other than Basic Biology Program who wish to enroll in this class should contact Graduate Student Affairs Section, Okazaki Administration Center (r7139@orion.ac.jp) during the registration period.
Keyword	bioinformatics genomics transcriptome evolution big data

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