c4Lab 核心能力查核表

姓名：_____

身份：_____

加入實驗室日期：_____

If you do not know what "machine learning" or "molecular biology" or "bioinformatics" is, you'd better watch this video first: http://case.ntu.edu.tw/CASTUDIO/index.php?speech_ID=855&page=1#Playing

	Graduate (PhD)	Graduate (MS)	Undergraduate	Rotation
Linux				
✧ vim/joe/emacs	✓	✓	✓	✓
✧ basic commands	✓	✓	✓	✓
✧ scripts for distributed computing	✓	✓		
Perl				
✧ parsing BLAST result	✓	✓	✓	✓
✧ parsing PDB format	✓	✓	✓	
✧ accessing mySQL database	✓	✓		
R				
✧ parsing microarray data				
✧ plots	✓	✓	✓	✓
✧ basic statistics	✓	✓		
Word editing				
✧ using styles	✓	✓	✓	
✧ EndNote	✓	✓	✓	
Web programming				
✧ html/css	✓	✓	✓	
✧ java script/ajax	✓	✓		
✧ cgi/php	✓	✓		
✧ mySQL	✓	✓		
Protein sequence analysis				
✧ MSA (ClustalW, ClustalX)	✓	✓	✓	
✧ PSSM (PSI-BLAST)	✓	✓		
✧ MAGIIC-PRO, seeMotif, (WildSpan)	✓	✓	✓	
✧ Disorder prediction (iPDA)	✓			
✧ Catalytic site prediction (E1DS)	✓			
✧ Structure prediction (I-TASSER)	✓	✓	✓	
✧ Structure prediction (Rosetta)	✓			
Protein structure analysis				
✧ Visualization (JMol, RasMol, PyMol)	✓	✓	✓	

✧ Structure alignment (TM-align)	✓	✓		
✧ Docking (AutoDock)	✓	✓		
✧ Docking (HADDOCK)				
NGS data analysis				
✧ Transcriptome assembly (Velvet, Trinity)	✓	✓		
✧ Genome assembly				
✧ Read mapping (RPKM calculation) => DEGs	✓	✓		
✧ GO analysis of differential genes (DEGs)	✓			
✧ ChIP-seq (peak detection, motif discovery)	✓			
✧ SNP				
Prediction of Protein-DNA interactions				
✧ ChIP-chip				
✧ ChIP-seq				
✧ eTFBS	✓	✓		
✧ DBD2BS	✓			
Cloud computing				
✧ Hadoop				
Technical writing				
✧ Abstract	✓	✓		
✧ Introduction	✓	✓		
✧ Materials and Methods	✓	✓		
✧ Results and Discussion	✓	✓		
✧ Conclusion	✓	✓		
Required courses				
✧ Biomedical data mining	✓	✓	✓	
✧ Structural bioinformatics	✓	✓		
✧ Data structures and algorithms	✓	✓		
✧ Statistical computation and analysis	✓			
Suggested courses				
✧ Data mining				
✧ Machine learning				
✧ Algorithms				
✧ Probabilities and statistics				
✧ Advanced algorithm design				
✧ Computer programming				
✧ Advanced programming				

結業日期：_____

實驗室負責人：_____