Introduction to Bioinformatics
Course overview

Ali Sharifi-Zarchi   Somayyeh Koohi

CE Department
Sharif University of Technology

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Presentation Overview

1. **Course Info**
   - Teaching team
   - Materials
   - Scoring system
   - Calendar

2. **Communications**
   - Github
   - Quera

Teaching team

- Instructors :
  - Prof. Ali Sharifi-Zarchi
  - Prof. Somayyeh Koohi

- Teaching Team Members :
  - Captain : Mohsen Piri
  - Slides Head : Yousof Mir Yousofi
  - Theoretical Head : Keyhan Hodaei
  - Practical Head : Farzan Rahmani
  - Quiz Head : Amirmohammad Nezami
  - Project Head : AmirMahdi Mahmoudi

Maryam Tavassoli - Ali Abdolshahi - Amirreza Aranpour - Sina Daneshgar - Yasan Hasanzadeh - Raoufeh Rezaei - Mehdi Hasanzadeh - Ali Hajisadeghian

- Hossein Shahabadi - Erfan Yeganegi Dastgerdi - Reza Ghorbani - Kian Tarakameh - Aysan Neghabi - Mohammad Saleh Hajinasrollah - Mehdi Anvari

- Yasamin Tafakor - Mohammad Reza Mazrouei - Mohammad Hossein Ahmadi

Materials

- **Book:** *Fundamentals of Molecular Genetics*
  Authors: Seyyed Ali Al-Ahmad , Manijeh Rahmani

- **Book:** *Essential Cell of Biology*
  Authors: Keith Roberts , David Owen Morgan

- **Book:** *Bioinformatics Algorithms*
  Authors: Phillip Compeau , Pavel Pevzner

- **Book:** *Deep Learning for Biology*
  Authors: Charles Ravarani , Natasha Latysheva

Scoring system

Task	Count	Score
Exercise	4	4 (+1)
Quiz	4	4
Midterm	1	4
Final	1	6
Project	1	2 (+0.5)
Class Activity	–	+0.5
SUM	**11**	**22**

Table: Summary of counts, and scores.

Calendar

جلسه	تاریخ	مدرس	موضوع کلاس درس	تمرین	کوئیز
1	مهر 20	دکتر کوهی/ شریفی	Introduction and introduction of the course		
2	مهر 22	دکتر شریفی	Structure of the Cells (Ch1)		
3	مهر 27	دکتر شریفی	DNA Structure, Replication, Origin of Replication (Ch 1)		
4	مهر 29	دکتر شریفی	Transcription, RNA Structure (Ch1)		
5	آبان 4	دکتر شریفی	Protein Structure, Translation (Ch1)		
6	آبان 6	دکتر کوهی	Pairwise Alignment (Ch 2)	تمرین 1	
7	آبان 11	دکتر کوهی	Pairwise Alignment (Ch 2)		
8	آبان 13	دکتر کوهی	Multiple Sequence Alignment (Ch 2)		
9	آبان 18	دکتر کوهی	Multiple Sequence Alignment (Ch 2)		
10	آبان 20	دکتر شریفی	Short Read Alignment (Ch 3)		
11	آبان 25	دکتر شریفی	Microarray, NGS, Sequensing (Ch3)		کوئیز 1
12	آبان 27	دکتر شریفی	Hypothesis Testing, t-test, permutation test, p-value (Ch 3)	تمرین 2	
13	آذر 2	دکتر شریفی	Bulk RNA Seq Analysis (Ch3)		
14	آذر 4	دکتر شریفی	Bulk RNA Seq Analysis / GO/Pathway Analysis (Ch3)		
15	آذر 9	دکتر شریفی	Single-cell vs Bulk RNA seq / single-cell protocols / RNA-seq Analysis (Ch3)		
16	آذر 11	دکتر شریفی	single-cell RNA-seq Analysis (Ch3)		
17	آذر 16	دکتر کوهی	Phylogenetic Tree (Ch 4)		کوئیز 2
18	آذر 18	دکتر کوهی	Phylogenetic Tree (Ch 4)	تمرین 3	
19	آذر 23	دکتر کوهی	Phylogenetic Tree (Ch 4)		
20	آذر 25	دکتر کوهی	Motif Finding (Ch 5)		
	پنجشنبه 27 آذر		Midterm		
21	آذر 30	دکتر کوهی	Motif Finding (Ch 5)		
22	دی 2	دکتر کوهی	Motif Finding (Ch 5)		
23	دی 7	دکتر کوهی	Blast Search (Ch 5)		کوئیز 3
24	دی 9	دکتر کوهی	Blast Search (Ch 5)	تمرین 4	
25	دی 14	دکتر شریفی	Cell Fate Determination (Ch 6)		
26	دی 16	دکتر شریفی	Advanced Topic (Ch 6)		
27	دی 21	دکتر شریفی	Advanced Topic (Ch 6)		
28	دی 23	دکتر شریفی	Advanced Topic (Ch 6)		کوئیز 4

Communications
Github

- https://github.com/SharifiZarchi/Bioinformatics
- Contains :
    - lecture slides,
    - Jupyter notebooks,
    - R scripts and hands-on examples.
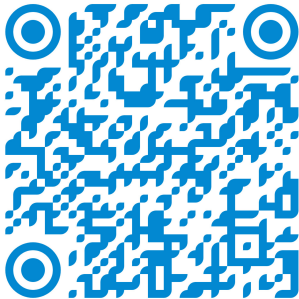
https://quera.org/course/add_to_course/course/23760/