SYLLABUS BISC 577a: Computational Molecular Biology Laboratory   **Spring 2017**

Time and Location: Tuesdays 2:00 – 3:50 pm, RRI 301

Instructors:

Dr. Liang Chen	213-740-2143	liang.chen@usc.edu	RRI 416E
Dr. Remo Rohs	213-740-0552	rohs@usc.edu	RRI 413H
Dr. Fei Sha	213-740-5924	feisha@usc.edu	RTH 403

Tentative Course Schedule:

Class	Topic
1	Chen (01/10) Introduction to the NCBI and UCSC web resources
2	Chen (01/17) Introduction to R (I)
3	Chen (01/24) Introduction to R (II)
4	Chen (01/31) Multivariate regression and variable selection
5	Chen (02/07) Clustering and phylogeny
6	Sha (02/14) Basic machine learning concepts
7	Sha (02/21) Linear model for classification and regression
8	Sha (02/28) Optimization: methods and practical guides
9	Sha (03/07) Deep learning models for classification
-	NO CLASS: Spring Break (03/14)
10	Guest speaker – Paul Thomas (03/21): Genomic data analysis with Gene Ontology and pathway knowledge
11	Rohs (03/28) Analysis of nucleic acid structure – Geometry and electrostatics
12	Sha (04/04) Deep models for sequence models
13	Rohs (04/11) Prediction of nucleic acid structure – Molecular simulation methods
14	Rohs (04/18) Protein-nucleic acid interactions – Readout and binding specificity
15	Rohs (04/25) High-throughput binding assays – Applications of machine learning

Homework:

Each of the three instructors will assign a set of homework assignments. You should hand in each homework by the specified due date. Points will be subtracted for late submissions.

Grade:

The course grade will be a letter grade based on the grade average of the homework assignments from the three sections of the course.

Statement for Observance of Religious Holidays:

The university's policy grants students excused absences from class to observe religious holidays (http://orl.usc.edu/religiouslife/holydays/absences.html). In this case, please contact your instructor in advance to agree on alternative course requirements.

Statement for Students with Disabilities:

Any student requesting academic accommodations based on a disability is required to register with Disability Services and Programs (DSP) each semester. A letter of verification for approved

accommodations can be obtained from DSP. Please be sure the letter is delivered to your instructor as early in the semester as possible. DSP is located in STU 301 and is open 8:30 a.m.–5:00 p.m., Monday through Friday. The phone number for DSP is (213) 740-0776.

Statement on Academic Integrity:

USC seeks to maintain an optimal learning environment. General principles of academic honesty include the concept of respect for the intellectual property of others, the expectation that individual work will be submitted unless otherwise allowed by an instructor, and the obligations both to protect one's own academic work from misuse by others as well as to avoid using another's work as one's own. All students are expected to understand and abide by these principles. SCampus, the Student Guidebook, contains the Student Conduct Code in Section 11.00, while the recommended sanctions are located in Appendix A: http://www.usc.edu/dept/publications/SCAMPUS/gov/. Students will be referred to the Office of Student Judicial Affairs and Community Standards for further review, should there be any suspicion of academic dishonesty. The Review process can be found at: http://www.usc.edu/student-affairs/SJACS/.