

THE UNIVERSITY OF TEXAS AT EL PASO
COLLEGE OF SCIENCE
BIOINFORMATICS PROGRAM AND
DEPARTMENT OF MATHEMATICAL SCIENCES

Course #: BINF 5354 (CRN 12127) or STAT 5354 (CRN 12091);
BINF 5113 (CRN 16808)

Course Title: BINF/STAT 5354: Post-Genomic Analysis;
BINF 5113: Mathematics Seminar for Bioinformatics

Credit Hours: 3

Term: Fall 2016

Course Meetings & Location: BINF/STAT 5354: Miners Hall 201 (9:00-10:20 a.m. T) and
Undergraduate Learning Center 338 (10:30-11:50 a.m. TR);
BINF 5113: Hudspeth Hall 213 (12:00 noon - 12:50 p.m. T);
***Please check your email for confirmed location.

Prerequisite Courses: STAT 5380, STAT 5385, STAT 5428 or Instructor approval

Instructors: Dr. Ming-Ying Leung

Office Location: Bell Hall 225

Contact Info: Phone # 747-6836
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Fax # 747-6502

Office Hours: math.utep.edu/Faculty/mleung/officehours

Textbook(s), Materials: Required: Applied Multivariate Statistical Analysis, 6th edition by
R. A. Johnson and D. W. Wichern.
Suggested: Biological Sequence Analysis: Probabilistic Models of
Proteins and Nucleic Acids by R. Durbin, S. Eddy, A.
Krogh and G. Mitchison.
Introduction to Probability Models by Sheldon M. Ross.

Course Objectives (Learning Outcomes): Students will learn to apply appropriate probabilistic models and
statistical techniques to address bioinformatics problems such as
biomolecular sequence and microarray data analyses. This course
consists of two modules and a lab: (1) Probabilistic modeling for
nucleic and amino acid sequences; (2) Statistical analysis of a
multivariate response; (3) Computer Lab-R statistical analysis package
to prepare and analyze data.

Through assigned projects, class discussions, hands-on labs, as well as oral presentations in the seminar, students will also acquire the skills to identify bioinformatics problems that require advanced mathematical and statistical knowledge, and to describe and discuss these issues with individuals with suitable expertise.

- Course Activities/Assignments: Students will be expected to attend lecture, read the book, and practice the concepts by solving problems assigned for homework. The homework problems will be supplemented with computer assignments requiring the use of statistical software available in the UGLC computer lab and the ACES computer lab in Bell Hall. Statistical software instructions will be provided as needed. In-class group activities will be used to encourage active learning. Study groups to discuss the problems and brainstorm approaches to problem solving are encouraged, however, the written assignments and computer programs turned in for grading are to be your own work and reflect your individual effort.
- Assessment of Course Objectives: BINF/STAT 5354: Homework, exam, project;
BINF 5113: Presentation
- Course Schedule: **September 7** – Class Census Day. If a student drops before the census date, neither the course nor a grade will appear on the student’s academic record. This is the last day to drop without a W.
October 28 - Course Drop Deadline
The comprehensive exam will be given during the week of final exams as scheduled by the University.
- Grading Policy: BINF/STAT 5354:
Assessment of the course is based on homeworks, exam, and project.
BINF 5113:
Grades are based on quality of student’s assigned presentation and his/her participation in discussions at the seminars presented by others.
- Make-up Policy: No make-up quizzes or late homeworks are allowed. Make-up examinations will not be given. Students are required to take the two exams at the scheduled times.
- Attendance Policy: Class attendance is required and noted at the beginning of class; more than two unexcused absences will result in an instructor-initiated drop or final grade reduction. .
- Academic Integrity Policy: Violations of academic integrity, including unauthorized submission of work performed by others, will be pursued vigorously to result in the most severe sanctions. Please refer to UTEP’s policy cited in sa.utep.edu/osccr/academic-integrity.
- Civility Statement: No text messaging in class. Please silence cell phones before coming to class. Students are expected to actively participate in class discussions and group activities. Group work that is not completed in class is to be finished as homework, so use the class time wisely by staying focused on the class topic and avoiding chit-chat.
- Disability Statement: If a student has or suspects she/he has a disability and needs an accommodation, he/she should contact the Center for Accommodations and Support Services (CASS) at 747-5148, email at cass@utep.edu, or go to Room 106 Union East Building. The student is responsible for presenting to the instructor any CASS accommodation letters and instructions.
- Military Statement: If you are a military student with the potential of being called to military service and/or training during the course of the semester, you are encouraged to contact as soon as possible.