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

Course #: BINF 5113
Course Title: Mathematics Seminar for Bioinformatics
Credit Hrs: 1
Term: Fall 2014 (Instruction Period 08/25/2014 – 12/04/2014)
Course Meetings & Location: CRBL C303, T 12:30 pm – 1:20pm
Prerequisite Courses: Department Approval Required
Course Fee: (if applicable) NA
Instructor: Xiaogang Su
Office Location: Bell Hall 320
Contact Info: Phone (915) 747-6860 [O]
xsu@utep.edu
Fax (915) 744-6502
Office Hrs: 1:30-2:30pm TW

Textbook(s), Materials:
Required
Suggested
  http://cran.r-project.org/doc/contrib/Krijnen-IntroBioInfStatistics.pdf

Course Objectives (Learning Outcomes):

This seminar focuses on statistical methods and probabilistic models for analyzing post-genomics data. It consists of two modules:

Topics covered include probabilistic modeling for nucleic and amino acid sequences; Probabilistic models (such as Hidden Markov Models - HMM) and machine learning approaches to sequence alignment, phylogeny, and RNA structure analysis.

Students will learn to apply appropriate probabilistic models and statistical/machine learning techniques to address bioinformatics problems such as biomolecular sequence and microarray data analyses. Through assigned projects, class discussions, hands-on labs, as well as oral presentations in the seminar, students will also acquire 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: Presentations and projects will be assigned throughout the semester. NO LATE COURSEWORK WILL BE ACCEPTED, EXCEPT EXTREME SCENARIOS.
Assessment of Course Objectives: Each student will be evaluated by the quality of the assigned projects and presentations, as well as the contribution to the discussions during other students’ presentations.

Course Schedule: 08/25 Class starts
10/31 Class drop deadline
12/08 - 12/12 Final Exam Period
09/01 Labor Day
11/27-11/28 Thanksgiving

Grading Policy: Letter grades are determined according to the following scale:

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<thead>
<tr>
<th>Grade</th>
<th>Score</th>
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<tbody>
<tr>
<td>A</td>
<td>90-100</td>
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<tr>
<td>B</td>
<td>80-89</td>
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<tr>
<td>C</td>
<td>70-79</td>
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<tr>
<td>D</td>
<td>60-69</td>
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<tr>
<td>F</td>
<td>&lt; 60</td>
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</tbody>
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Attendance and class participation will be used to help decide borderline grades.

Make-up Policy: All other assignments must be turned in on time.

Attendance Policy: Class attendance is required and helpful to decide borderline grades. If a student has to be absent from a particular seminar, he/she will be responsible for catching up with course material.

Academic Integrity Policy: Please see http://academics.utep.edu/Default.aspx?tabid=23785

Civility Statement: This is a class where participation is required. You will be participating in classroom discussions. All students will be treated with respect.

Disability Statement: If you have a disability and need classroom accommodations, please contact The Center for Accommodations and Support Services (CASS) at 747-5148, or by email to cass@utep.edu, or visit their office located in UTEP Union East, Room 106. For additional information, please visit the CASS website at www.sa.utep.edu/cass.

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 me as soon as possible.