STP 598: Computational Statistics – Fall 2014

STP 598 is in Blackboard	**INSTRUCTOR:** Ioannis Kamarianakis (call me Yiannis)
TIMES: Tuesdays and Thursdays 12:00 PM- 1:15 PM	**OFFICE HOURS:** Tuesdays and Thursdays 1:30 PM-6:00 PM and by appointment
ROOM: ECG G218	**E-MAIL:** yiannis76@asu.edu
DATES: 08/21– 12/05	**OFFICE:** PSA 739
SLN: 83783	**PHONE:** 480-965-3724

Text: "Computational Statistics", 2nd Edition, Givens and Hoeting, Wiley.

Selected material will also be presented from: "Introducing Monte Carlo Methods with R", Robert and Casella, Springer; "An Introduction to Statistical Learning", James, Witten, Hastie and Tibshirani, Springer; "The Elements of Statistical Learning", Hastie, Tibshirani and Friedman, Springer.

Prerequisites: STP 420 with C or better, STP 421 with C or better

Tentative Dates for Lectures and Exams

WEEK	DATES	SECTIONS	COMMENS
1	08/21	Introduction to R	08/22: Last day to enroll, drop deadline
2	08/26 – 08/28	Introduction to Resampling Methods: Cross-Validation	
3	09/02 – 09/04	Regression in High Dimensions	

4	09/09 – 09/11	Shrinkage Methods; Presentation of Projects	
5	09/16 – 09/18	Bootstrapping	
6	09/23 – 09/25	Bootstrapping; Presentation of Projects	
7	09/30 – 10/02	Combinatorial Optimization	ASR#1
8	10/07 – 10/09	Combinatorial Optimization; Review; Example Questions for Exam 1;	10/11 – 10/14: Fall Break
9	10/16	**Exam 1 (10/16)**	
10	10/21 – 10/23	The EM Algorithm	
11	10/28 – 10/30	EM Variants; Presentation of Projects	ASR#2
12	11/04 – 11/06	Simulation and Monte Carlo Integration	11/05: Course Withdrawal Deadline
13	11/13	Simulation and Monte Carlo Integration; Presentation of Projects	11/11: Veteran's Day
14	11/18 – 11/20	Monte Carlo Optimization	
15	11/25	Introduction to Markov Chain Monte Carlo Algorithms	11/27: Thanksgiving
16	12/02 – 12/05	Review; Example Questions for Final Exam	

Point Allocation		Grading Scale	
		A	85 - 100
Exam 1	15%	B	70 - 84
Projects	60%	C	55 - 69
Final Exam*	25%	D	40 - 54
		E	0 - 39

Note: Information in the tables shown above may change; changes will be announced in class and in Blackboard.

Mathematics Department Final Exam Policy: The Department of Mathematics follows Arizona Board of Regents policy, which states that all final examinations shall be administered at their officially scheduled times. A final exam schedule appears in the Fall Bulletin of classes. Requests to take the final examination at a time other than the published time will not be granted except in emergencies or for reasons of religious practice. In particular, nonrefundable plane tickets, weddings, work schedules, and the like are *not* acceptable reasons for rescheduling final examinations. Please keep this policy in mind when making end-of-semester plans.

Makeup exams: Make-up exams will *not* be given. Permission to take an exam at a time other than the scheduled one will be granted at the sole discretion of the instructor. Written documentation may be required to substantiate claims of hardship. Arrangements must be made before the date of the test. Unexcused absences from exams will result in a grade of zero.

Homework, Quizzes and Projects: Regular quizzes and projects may be given at the discretion of the instructor; no makeup quizzes or projects. Homework, quizzes, and projects will be graded. Unless otherwise noted in class, homework assignments given out each week will be due at the beginning of class on Thursdays. Late homework will be accepted at the sole discretion of the instructor. Work that is not neatly written will not be graded. Students may work together on homework, but each individual student is required to submit their own work.

Attendance: Each class will cover several sections therefore attendance at all meetings in their entirety is expected. If illness or other circumstance prevents you from attending, then I would appreciate an email. Please do not come to class if you are feeling ill. I am happy to make appropriate accommodations. Students absent for university sponsored events must make arrangements for making up the work they will miss *before* they are absent.

Estimated workload: You will be expected to complete homework assignments diligently and on time in order to keep up with the material. You should spend at least 15 hours per week on this course, counting homework and lectures.

* An average exam-score of 50 is required to pass the course.

Software: In class, I will present numerous examples using R (www.r-project.org). Students are strongly encouraged to use R for their projects because it is powerful, popular and free. Alternative software packages are SAS, SPSS, MINITAB (available on www.my.asu.edu under My Apps).

Extra credit: No individual request for extra credit will be considered.

Disabilities: If you have any disability that may hinder your performance, please notify me as soon as possible.

Ethics: Cellular phones and pagers must be turned off during class. No texting, no ipods, etc. Arriving late to class will not be tolerated. Academic dishonesty, including inappropriate collaboration will not be tolerated. There are severe sanctions for cheating, plagiarizing and any other form of dishonesty. More information can be found at:
https://provost.asu.edu/academicintegrity

Copyright notice: Unless otherwise noted, all instructor-prepared materials, including lectures, handouts and homework assignments and solutions, are subject to copyright and may not be recorded, reproduced, or distributed without written permission.

Agreement of Terms: By remaining registered through drop/add period, you agree to all terms and policies set forth in the syllabus. This syllabus is tentative and should not be considered definitive. The instructor reserves the right to modify it (including the dates of the tests) to meet the needs of the class. Announcements made in class are considered addenda to the syllabus. It is the student's responsibility to attend class regularly and to make note of any change.