Statistics 330: Probability and Statistics for Computer Science.
Spring 2014: Section A, MWF 3:10–4:00, Sweeney Hall 1134

Instructor: Cory Lanker. Office: Snedecor Hall 2410. Contact info: `clanker@iastate.edu`

Office hours: Please see the course Blackboard page for updated information, under Course Information. You may always e-mail me for an appointment.

Office hours are a great time to ask questions about some concept you don't understand, resolve a grading question, or get help solving any problems you're having trouble tackling.

Teaching assistant: Soyoung Park. Contact info: `sypark@iastate.edu`.

Prerequisites: MATH 166. Students who have not taken this course **cannot** take this class as a departmental rule. This prerequisite is required due to the calculus in the course.

Required text: Probability and Statistics for Computer Scientists, Second Edition, by Michael Baron, 2013. ISBN: 978-1439875902

Note that this is the second edition and the homework questions selected from this edition will not match the first edition of the book. There are significant differences between the two editions. The four exams will be open book but closed notes.

Course webpage: Blackboard (`bb.its.iastate.edu`) will be the primary source of information for this course, including an updated course calendar. Send the instructor an e-mail for enrollment or information access issues. The Blackboard site has course information, assignments, solutions, exam preparation materials, and access to grades. Checking your Iowa State e-mail on a daily basis is necessary as course communication through Blackboard uses your university e-mail account.

How to do well in this class: Statistics is a story that can be told many ways. I will teach you one version of the story, a version that merges the book with my knowledge and experience. The book tells a similar version of the same story. Lecture will contain examples, activities, and worksheets to help you learn the material in another way. Therefore, both attending lecture and reading the book will provide you the most depth to reinforce your learning of statistics.

Working out statistics problems is an integral part of learning statistics and the statistical way of thinking. This means that you must put forth honest effort in your homework assignments and lecture worksheets. Mastering the problem-solving skills needed for the examples, worksheets, and homework is the best way to get a high grade for this course.

This is a three-credit hour class. According to the University Catalog, each week students should spend three 50-minute periods in lecture and **six hours** outside of class learning the material. Students should be prepared to put forth this kind of effort in order to master the large amount of covered material. Do not fall behind and expect to catch up later in the semester!

Assessment: Your final course percentage is based on the following proportions: 40% in-semester exams, 30% final exam, 30% homework. The three in-semester exams are 15%, 10%, and 15% of the 40% amount, respectively, proportional to the size of the material covered for those exams.

Letter grades will be assigned according to final course percentages as calculated above. This means students will receive letter grades at least at high as those students with lower final course percentages. Please let the instructor know if there are extenuating circumstances that may warrant special consideration when calculating course percentages. Extenuating circumstances will require appropriate documentation, in all cases received before the exam in question; therefore keep me informed of such extenuating circumstances before the exams are taken.

Homework: Homework assignments will be assigned throughout the semester. Their due dates will be announced in class and on Blackboard. Always check Blackboard for up-to-date deadline information. Assignments are due at the beginning of lecture on the due date. There is a 20% penalty for assignments that are instead turned in by the end of lecture. Late homework submissions are given half-credit and are only accepted until the lecture following the due date.

Homework is to be completed and submitted individually. Group work is encouraged but all answers must be unique to the student. If the grader finds identical answers indicating copying, we may lower the grade of the offending assignments.

Exams: Three in-semester exams are scheduled. Dates will be announced in class and on Blackboard giving advance warning. The tentative dates for these exams are February 14, March 14, and April 25, but these dates are subject to change. Each exam is 50 minutes, completed in lecture. If the date of an exam changes, I will give at least one week's notice and make sure the change is announced in lecture and posted on Blackboard.

If you are feeling ill or other performance-affecting situations arise before an exam, please send me an email to alert me to the matter. Any students who miss an exam without making the appropriate arrangements ahead of time will get a zero score. Only at my discretion will I allow students to make up an exam.

Approved materials for the exams will be announced ahead of time. Any exceptions to this policy must be negotiated with the instructor in advance.

Conflicts with exams: If you must miss an exam due to a legitimate scheduling conflict, it is your responsibility to contact the instructor **at least 48 hours** before the scheduled starting time and provide any appropriate documentation requested.

Electronic device policy: The use of electronic devices and laptops are prohibited. You are part of a learning community and these devices are disruptive to the class and instructor. If I see someone on a device I will make a polite reminder about this policy.

Plus-delta assessment: At some point in the course, I may want feedback on how students are finding the material and the course management. To do this I will give a plus-delta assessment in lecture. Instructions will be given in lecture. Please take your time to do a thorough assessment. Confidentiality of all assessments is assured.

Final exam: Friday May 9, 12:00–2:00, in classroom. Note: This date and time is set by the University and is subject to change. Check Blackboard for any changes to the date, time, or place of the final exam. The final exam is cumulative. Final exams may not be taken early under any circumstances.

Dead week: There will be a homework assignment due during Dead Week.

Course description: Topics from probability and statistics applicable to computer science. Basic probability; Random variables and their distributions; Stochastic processes including Markov chains; Queuing models; Basic statistical inference; Introduction to regression. Nonmajor graduate credit.

Topic list: Probability (Chap. 2); Discrete probability distributions (Chap. 3); Continuous probability distributions (Chap. 4); Estimating probabilities with Monte Carlo methods (Chap. 5); Stochastic processes (Chap. 6); The M/M/1 queuing system (Chap. 7); Describing data (Chap. 8); Interval estimation and hypothesis testing (Chap. 9); Introduction to regression (Chap. 11).

Academic dishonesty: This course follows the ISU Academic Dishonesty policy listed in the University Catalog. Please make sure you are acquainted with that policy as these violations are treated in a serious manner. Copying answers from any source is strictly prohibited, that is, all submitted work must be that of the authors.

Disability statement: Iowa State University complies with the American with Disabilities Act and Section 504 of the Rehabilitation Act. This course material can be provided to you in alternative format. Anyone who anticipates difficulties with the content or format of the course due to a physical or learning disability should submit their SAAR form to me immediately so we can work out a plan. Contact the Disability Resources (DR) office, in Room 1076 of Student Services Building, 294-7220, for more information. Students should contact me during **the first week** of class (or when a SAAR form is completed) so I can provide accommodations in a timely manner.

Feedback: I am always open to feedback about the syllabus, the course, and its policies. I seriously consider any feedback. If a change to the syllabus is deemed necessary, I will discuss the change in lecture and post the updated syllabus on Blackboard. Accordingly this syllabus is subject to change.