ENGRD 2700 Basic Engineering Probability and Statistics  
Spring 2014, 3 credits

This class provides an introduction to, and working knowledge of, basic probability and statistics as applied in engineering. It includes computer analysis of data. Topics include random variables, probability distributions, expectation, estimation, hypothesis testing and regression.

**Class Time and Location:** Tues, Thurs 1.25pm - 2.40pm. Olin 155

**Recitations (attend one):**

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| 1. Monday 8:40-9:55, Rhodes 471 |
| 2. Monday 11:40-12:55, Rhodes 453 |
| 3. Monday 1:25-2:40, Rhodes 471 |
| 4. Tuesday 8.40-9.55, Rhodes 471 |
| 5. Tuesday 10:10-11:25, Rhodes 471 |

**Prerequisites:** Prerequisites: MATH 1910 and 1920. Corequisite MATH 2940.

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| **Instructor:** | Shane G. Henderson (sgh9), Professor, ORIE |
| **TAs:** | Go to blackboard to link to piazza for uploading and/or looking for answers to questions of broad interest  **For all course enquiries, e.g., hw extensions, contact Kenneth Chong (kcc66)**  Kenneth Chong (kcc66)  Cory Girard (cjg264) Adam Hardiman (ah756)  Yuhang Ma (ym367)  Yuan Xia (yx227)  Mark McConnell (mtm67)  Saravanan Rajendran (sr538)  Xi Rao (xr26)  Jesse Schanback (jas894) |

*For office hours see the class webpage. Click on “Course Tools” then “Contacts.”*

**Attendance:**  
Attendance at both the lectures and one of the recitations is expected but not required. You are responsible for being aware of the announcements and content of both.

**VideoNote:**An archive of the Fall 2013 version of this course (when I last taught it) is available on VideoNote. The course is almost identical to that offering, so hopefully this is sufficient for studying etc. There are more details on the class webpage under “Course Info” or just go to <http://www.videonote.com>

**Website:**  
The course website is available through <http://blackboard.cornell.edu/>. I send many messages through email, so ensure your email is correct in blackboard, and please look for answers to common questions on piazza (see the link on the left-hand menu in blackboard).

**Text and Clickers:**

1. Required: A coursepack is available from the Cornell Store. A pdf version is on the webpage and can be used instead if you take notes electronically. I hold the copyright on the course notes and other course materials (homework etc), and buying or selling course materials is prohibited.
2. Required (for lectures): We will be using i>clickers in the course. You can either purchase an i>clicker from the Cornell store, or purchase the cellphone app i>clicker GO. Remember to register your i>clicker on Blackboard each semester. See <http://pollinghelp.cit.cornell.edu/support/polling-faq/> for more information.
3. Recommended reading: J. L. Devore. Probability and Statistics for Engineering and the Sciences. **Any** edition, including an online edition that I am told is an alternative, is fine. This book explains the material well, if a little dryly, with a large number of helpful examples that matches the course quite well, although the exercises are a bit easier than I typically assign. I’ve placed this book on reserve at Uris.

Software:

We will primarily use the free software R in the class, but you may use any computational tools you like to do the homework, provided that it does not make the exercise completely trivial, e.g., Matlab, Excel, Python

Exams:

You may bring a single sheet (US-letter size) with you to the prelim, and two sheets (US-letter size) to the final. You may not bring a computer, but may bring a calculator that does not have any communication capability. *Do not bring cellphones. The mere presence of these is enough for an honor code violation.*

Preliminary exam: In class on Thursday March 12. (The next day is add/drop deadline. We will try to return grades by that day, but Engineering Advising is often accommodating of classes with exams close to add/drop deadline.  
Final exam: TBD. Don’t plan on traveling till after the exam period!

Grading Policy:  
Your grade will be based on filling out the course evaluation (1%), clicker responses (4%), homework (25%) done individually or in pairs, and exams (70%). Clicker and homework weight were changed on Jan 27 in class by popular vote. Your exam grade will be the maximum of (35% prelim, 65% final) or 100% final (so that if you improve over the semester then you are rewarded). Homework assignments are equally weighted. Your lowest two homework scores will be dropped, provided that you make a conscientious attempt at homework, including the final two homework sets.

The clicker response grade comes from answering questions in class using your i>clicker. At the end of the course this grade is given by the rounded up value of the fraction, x say, of i>clicker questions you have answered (they don't have to be correct) as recorded by the system. So you only need to answer 50% of the clicker questions to get the full score! This is a reward for attending class, and is the only grade penalty if you elect to not attend class. The rounding up allows for those occasions when you cannot attend lecture for whatever reason, your i>clicker battery is dead, you forgot your i>clicker, a dog ate your i>clicker, a dog ate you, etc.

If there is a dispute about grading (a homework set or an exam), you may turn in the work with a written request for a regrade within a week of the work being returned. *All* of the work, and not just the disputed question, will be regraded.

If you have a *good* reason why you cannot meet a deadline, please check with the Course Contact TA as soon as possible, and preferably *before* the deadline passes. In these cases some arrangement can usually be found.

**AEW:**

An Academic Excellence Workshop (AEW) section is available to be taken in conjunction with this course. AEWs are optional 1-credit supplemental courses which meet for one two-hour collaborative problem-solving session each week throughout the semester. Designed to enhance student understanding, the workshops feature group work on problems at or above the level of course instruction. In the workshops, small-group problem-solving is directed by undergraduate peer educators called facilitators. The AEWs are graded S/U, based on attendance.  The following AEW sections are available for this course:

ENGRG 2700-201 Wed. 2:30-4:25pm  UPS 207

Enroll online during the add period.  Space is available, but may fill up quickly.  If there are no spots available in a section that fits your schedule, you may add your name to the wait list in Engineering Learning Initiatives, 167 Olin Hall.  For more information about AEWs, visit: <http://www.engineering.cornell.edu/aew>

**Tutoring:**

One-to-one peer tutoring is available free of charge for engineering students and BEE majors enrolled in this course through Engineering Learning Initiatives’ Tutors-on-Call program. Review program policies and request a tutor at: <http://www.engineering.cornell.edu/tutoring>

**Academic Conduct:**  
Each student in this course is expected to abide by the Cornell University Code of Academic Integrity. Any work submitted by a student in this course for academic credit should be the student’s own work, with exceptions/particulars described below.

All homework assignments are to be completed by students working either alone or in pairs. You may discuss the homework problems with others if you wish, but only at the level of a discussion in a corridor. You may not work through the solutions with other groups, and you cannot share computer files. You may not discuss the homework with past students who may have significant knowledge of the details of the homework set. You are also not allowed to derive advantage in any way from the existence of solutions prepared in prior years, whether the solutions were former students' work or copies of solutions that had been made available by the instructors.

Don’t bring other people’s i>clickers to class.

Course materials posted on Blackboard are intellectual property belonging to the professor.  You are not permitted to post or download course materials from this class from external websites without my express permission.

Violations will be handled in accordance with the Code of Academic Integrity available at <http://www.theuniversityfaculty.cornell.edu/AcadInteg/code.html> and you can learn more at <http://www.theuniversityfaculty.cornell.edu/AcadInteg/> .

If you have any questions about this policy, *please* do not hesitate to contact me.

**Personal or Academic Stress:**  
If you are experiencing undue personal or academic stress at any time during the semester or need to talk with someone about a personal problem or situation, I encourage you to seek support as soon as possible. I am available to talk with you about stresses related to your work in my class. Additionally, I can assist you in reaching out to any one of a wide range of campus resources, including:

* Your college’s Academic Advising or Student Services Office
* Cornell Learning Strategies Center at 255-6310, <http://lsc.sas.cornell.edu>
* Gannett Health Services at 255-5155, [www.gannett.cornell.edu](http://www.gannett.cornell.edu)
* Peer Support provided by [Empathy Assistance and Referral Service](http://ears.dos.cornell.edu/) at 255-EARS

**Disability Related Concerns**

Students with either an ongoing or short-term disability are encouraged to contact Student Disability Services (SDS) for a confidential discussion of their need for academic accommodations. SDS is located in 420 CCC building; phone number is 254-4545.