

Math 111_03 CRN 20284
Elementary Probability and Statistics
TR 11:00am to 12:15pm

Instructor: Dr R M Dunwell

Office: OH 319

Office Hours: Monday, Tuesday and Thursday 3:15pm to 5pm

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Text: **The Basic Practice of Statistics, David Moore, 5th Edition**

Course Description:

Statistical reasoning is an essential tool for making evidence based decisions in all areas of life. Statistics allows one to decide if an educational testing method is biased, if one drug is more effective than another, if the expression of characteristic is solely determined by genetic factors, and so on and so on. The list is endless. With the programs to “crunch” huge data sets available on every computer the power of statistical is available to everyone. This course will teach you how to wield that power wisely, and introduce you to the probabilistic laws that are the source of that power.

Content:

Descriptive Statistics:

The course will begin with showing you how to effectively and efficiently summarize and display categorical, discrete and continuous data.

Probability:

- Definition of probability
- Conditional probabilities
- Binomial distribution (a probability distribution of a discrete quantity).
- Probability distribution of continuous quantities.

Sampling Distributions

- Definition
- Sampling distribution of sample mean
- Sampling distribution of $\frac{\bar{X}-\mu}{\sigma/\sqrt{n}}$ and $\frac{\bar{X}-\mu}{S/\sqrt{n}}$
- Sampling distribution of $\frac{(n-1)S^2}{\sigma^2}$

Inference:

- Hypothesis tests to test: $p = p_0, \mu = \mu_0, \sigma = \sigma_0$
- Confidence intervals on p, μ, σ
- Comparing means of two samples
- χ^2 -Goodness of fit test.

Course Prerequisites: High school algebra, only.

Office Hours: Students are **strongly** encouraged to take advantage of my office hours and make appointments at other times.

Course Materials

This syllabus, and a course schedule, is available on Moodle. This is also where you will find adjusted homework schedules, review sessions, and links to files you may find helpful. I will announce everything I posted in class, but students are encouraged to consult the Moodle periodically, particularly if they have missed a class.

Grading:

Your letter grade for the course will be based on the following scale:

A	[93, 100]	B-	[80, 83)	D+	[67, 70)
A-	[90, 93)	C+	[77, 80)	D	[63, 67)
B+	[87, 90)	C	[73, 77)	D-	[60, 63)
B	[83, 87)	C-	[70, 73)	F	[0, 60)

The total percentage will be computed as follows:

- Attendance: 10%
- Homework, and Tasks: 25%
- In Class Tests 24% (8% each)
- Written Reports 16% (8% each)
- Final Exam 25%

Attendance Policy: In addition to the College's attendance policy, you will receive attendance credit for every lecture you attend. If you miss a lecture you will lose this credit, regardless of the reason for the absence. There will however be additional credit exercises posted at regular intervals on Moodle that will be equivalent to the attendance of one lecture.

Homework: Will be graded on correctness and partial credit will be awarded. All homework assignments carry equal credit. Homework will be assigned for most lectures, but will not be due until 5pm on the Monday after it was assigned. Late submission will not be graded, unless prior permission has been given.

Tasks: Are work assignments that will be graded on completeness only. All tasks carry equal credit, and this will be half of the credit given for a homework assignment.

Tests: There will be three in class tests on: 4nd February, 4th March and 15th April.

Written Reports: You will have to compile two written reports. One will be a descriptive report on data. It will be assigned on 28th January and due on 9th February. A second report will concern the experimental determination of a sampling distribution. This will be assigned on 11th March and due on the 23rd March.

Final Exam: The final exam will be a comprehensive written exam, it is scheduled for 8:30am, Saturday 8th May.

To receive full credit on any test, exam or homework it will necessary to show your working.

Math Support Center:

The Math Support Center is a resource for students located on the third floor of Ohlendorf. Tutors at the support center will be available as a resource to you. See Moodle for the schedule.

Honor Code:

All students are expected to conduct themselves within the guidelines of the College's Honor Code. Please ask me if you have any questions about what is allowed.

Students with Disabilities:

If you have or think you may have a documented disability, please contact me and the Office of Student Disability Services as early in the semester as possible.