# Course Information and Syllabus

*Version 1.0*

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|---|---|
| **Course Web site** | http://www.math.iup.edu/~tshort/courses/math363 |
| **Instructor** | Dr. Tom Short |
| **Office** | Stright Hall Room 236 |
| **E-mail address** | *tshort@iup.edu* |
| **Office phone** | 724-357-4060 |
| **Mailing address** | Mathematics Department<br>Indiana University of Pennsylvania<br>210 South Tenth Street<br>Indiana, PA 15705 |
| **Office hours** | Mondays, Wednesdays, and Fridays 9:00 until 10:00 AM,<br>Tuesdays and Thursdays 4:00 until 5:00 PM,<br>by appointment, and any time my office door is open. |
| **Online calendar** | http://www.calendar.yahoo.com/tomshortjr |

**Course Meeting Times and Location**

| CRN | SUBJ | CRSE | SEC | CREDITS | TITLE | | CAMPUS | |
|---|---|---|---|---|---|---|---|---|
| | | START DATE | | END DATE | DAYS | TIMES | BLDG | ROOM |
| 10794 | MATH | 363 | 001 | 3.00 | Math Statistics I | | Indiana | |
| | | Aug 27, 2007 | | Dec 15, 2007 | TR | 05:05 pm - 06:20 pm | STRGT | 229 |
| | | Instructor(s): | | Thomas H Short | | | | |
| 10795 | MATH | 563 | 001 | 3.00 | Mathematical Statistics I | | Indiana | |
| | | Aug 27, 2007 | | Dec 15, 2007 | TR | 05:05 pm - 06:20 pm | STRGT | 229 |
| | | Instructor(s): | | Thomas H Short | | | | |

**Course Descriptions**

**MATH 363 Mathematical Statistics I**
**Prerequisites:** MATH 216; MATH 226 **(**may be taken concurrently)
Probability theory necessary for an understanding of mathematical statistics is developed. Applications of set theory to models, combinations and permutations, binomial, Poisson and normal distributions, expected values, and moment generating functions.

**MATH 563 Mathematical Statistics I**
Probability theory necessary for an understanding of mathematical statistics is developed; applications of the theory are given, with emphasis on binomial, Poisson, and normal distributions. Sampling distributions and the central limit theorem are developed.
**Prerequisites**: Differential and Integral Calculus.

## Course Materials

### Textbook

*Probability and Statistical Inference* (7th ed.) by Robert V. Hogg and Elliot A. Tanis. Published by Pearson Prentice Hall in 2006.

You will need at least a scientific calculator to complete problems in this course. You may find graphing calculators and computer software useful for the course, but you are not required to use them.

## Course Rules

1. Be nice.
2. Work hard.
3. Do what is right, because it is right.

## Disclosure policy

The definition of "plagiarism" is more closely related to not acknowledging the source of information or assistance than to the act of sharing information or accepting assistance.

With that in mind, you are allowed to use books, Web resources, people (including other students in our class), and any other resources you wish to help you complete the out-of-class work assigned in this course. However, you must disclose any assistance you receive from these external sources. I will consider failure to disclose the resources you use and assistance you receive as a violation of the IUP Academic Integrity Policy (see http://ww.iup.edu/registrar/catalog/acapolicy/index.shtm#Academic Integrity Policy and Procedures), and will take appropriate disciplinary action.

Please note that in-class exams in this course must be completed by the individual student only, and that I reserve the right to intervene in situations in which I perceive collaboration to be out of balance or dependence on external resources to be extreme.

## Grading policies

Components of your grade may include required homework assignments, projects, optional assignments, in-class assignments, quizzes, in-class tests, and a cumulative final examination.

The in-class tests will be given on **Thursday, September 20**, **Thursday, October 11**, and **Thursday, November 8**, and will each be worth 60 points.

The cumulative final exam will be given on **Tuesday, December 11 from 2:45 until 4:45 PM** and will be worth 100 points.

Your grade will be computed by finding the percentage of points you earn in the course out of the number of points available to you in the course through required and optional work.

| Grade | Percentage range | |
|---|---|---|
| A | 90% to 100% | **Advanced** understanding of the course material |
| B | 80% to 90% | **Basic** understanding of the course material |
| C | 70% to 80% | **Concern** about your understanding of the course material |
| D | 60% to 70% | **Deficient** understanding of the course material |
| F | 0% to 60% | **Seriously deficient** understanding of the course material |

**Attendance and late homework policies**

You are expected to attend all class meetings, including presentations by other students. If you miss a class, please turn in any assignments that were due as soon as possible.

Grades for assignments turned in late will be penalized, with an increasing penalty as time passes beyond the due date, unless a legitimate excuse is approved by the instructor.

Make-up assignments and tests must be arranged on a case-by-case basis, and will be approved only with a legitimate excuse.

# Course Syllabus

| ***Dates*** | ***Topic*** |
|---|---|
| August 28 & 30 | Probability and counting |
| September 4 & 6 | Conditional probability and independence |
| September 11 & 13 | Discrete random variables |
| September 18 & 20 | Mathematical expectation |
| *Thursday, September 20 – Test 1* | |
| September 25 & 27 | The Bernoulli and Binomial distributions |
| October 2 & 4 | Moment generating functions |
| October 9 & 11 | The Poisson distribution |
| *Thursday, October 11 – Test 2* | |
| October 16 & 18 | Continuous random variables |
| October 23 & 25 | The uniform and exponential distributions |
| October 30 & November 1 | The gamma and chi-square distributions |
| November 6 & 8 | Distributions of functions of random variables |
| *Thursday, November 8 – Test 3* | |
| November 13 & 15 | Bivariate distributions |
| November 19 – 23 | *Thanksgiving recess* |
| November 27 & 29 | Correlation and conditional distributions |
| December 4 & 6 | Transformations of random variables |
| December 10 & 11 | |
| *Monday, December 10 – Last day of classes* | |
| *Tuesday, December 11 – Final exam, 2:45 until 4:45 PM* | |

Please see the IUP ACADEMIC CALENDAR - Fall 2007
(http://www.iup.edu/registrar/calendars/FALL.shtm)
for important dates throughout the semester.