

# Math 4030FA/FB Probability and Statistics (2018 Fall)

Course Website: <http://whuang.lakeheadu.ca/4030.htm>

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## Lectures for 4030FA:

MW: 8:30 – 10:00 AM (AT 1001)

Office Hours:        **Wednesdays: 3:00 – 4:00 PM (RB 2007)**

## Lectures for 4030FB:

MW: 11:30 – 1:00 PM (RB 1042)

**Email Communication:** Any time. When sending emails regarding the course, include course number, your name, and keywords in the subject line. For example, “Subject: Math 4030, Jen Smith, formula for standard deviation”. (Otherwise, your message will not be opened.)

**Textbook:** R. Johnson, Miller & Freund’s Probability and Statistics for Engineers, 9<sup>th</sup> Edition.

## Software (optional):

- Excel
- R: R is a free software environment for statistical computing and graphics. To download R, go to <https://www.r-project.org/>.
- MATLAB
- SPSS

## Performance Evaluation:

	Weight
Assignments	16%
Midterm	20%
Final Exam	64%

## Lectures:

1. Students are expected to attend all lectures, prepared. Preparation includes review of the previous lectures and preview of the upcoming course materials according to the course schedule.
2. Students are fully responsible for any missed information including announcements due to the absence of lectures.
3. Private discussions and/or conversations are not permitted during lecture time. Cell phones are to be turned off during lecture time.

## Assignments:

- There will be 9 assignments, of which 8 highest marks will be used toward the final grade of the course. The problem sets will be posted on course website.
- The assignments can be done by hand writing, computer typing, or mix of the both. Statistical analysis can be done by using handheld calculator and any statistical analysis software. A cover part (either a separate page or top part of the first page) is needed for every assignment, which includes your full name (same as the one on your student ID card), student ID number, the course number and session, and assignment number.
- To submit your assignments, drop them in the labeled assignment box at the 2<sup>nd</sup> floor hallway of Ryan Building before 4:00 PM on the due date (normally **Thursdays**). (Assignments will **NOT** be collected at the lectures.)
- Solutions of the assignments will be available online following the due dates. For this reason, no late assignments will be marked, and no request for assignment extension will be granted, under **ANY** circumstance.

- Students are expected to do their assignments **independently**. Plagiarism will be disciplined according to university regulations.

### Midterm and Final Exams:

- The 80-min midterm exam is scheduled during the lecture hours on **Wednesday, Oct. 24**. The 3-hour final exam is scheduled at the end of the term.
- Both exams are close-book. Students are allowed to bring 1 page (letter size, both sides) of personal formula sheet (for formulas only) and a non-programmable calculator. Related tables, when needed, will be provided.

### Tentative Schedule (Subject to Change):

Week	Content	Sections	Assignments (Due Dates)
Week 1 (Sept. 5)	Introduction; Basic concepts;	1.6	Assignment 1 (Sept. 20, 4:00PM)
Week 2 (Sept. 10 & 12)	Tables, and Charts	2.1 – 2.4	
	Descriptive Measures	2.5 – 2.7	
Week 3 (Sept. 17 & 19)	Sample Space, Events, and Definition of Probability	3.1 – 3.4	Assignment 2 (Sept. 27, 4:00PM)
	Properties of Probability, Conditional Probability and Bayes' Theorem	3.5 – 3.7	
Week 4 (Sept. 24 & 26)	Random Variables, Mean, Variance, and Chebyshev's Theorem	4.1, 4.4, 4.5	Assignment 3 (Oct. 4, 4:00PM)
	Binomial and Hypergeometric	4.2 – 4.3	
Week 5 (Oct. 1 & 3)	More Discrete Probability Distributions	4.6 – 4.8	Assignment 4 (Oct. 18, 4:00PM)
	Continuous RV, Normal Distribution	5.1 – 5.3	
<b>Fall Reading Week</b>			
Week 6 (Oct. 15 & 17)	More Continuous Distributions	5.4 – 5.9	Assignment 5 (Nov. 1, 4:00PM)
	Joint Distributions	4.9, 5.10	
Week 7 (Oct. 22 & 24)	Normality Issues***	5.12 – 5.13	Assignment 6 (Nov. 8, 4:00PM)
	<b>Midterm (Oct. 24)</b>		
Week 8 (Oct. 29 & Oct. 31)	Sampling Distribution of Mean	6.1 – 6.3	
	Estimation of Population Mean	7.2 – 7.3	
Week 9 (Nov. 5 & 7)	Hypothesis Testing	7.5 – 7.8	Assignment 7 (Nov. 15, 4:00PM)
	Comparing Two Means	8.2 – 8.4	
Week 10 (Nov. 12 & 14)	Inferences Concerning Variances	6.4, 9.1 – 9.3	Assignment 8 (Nov. 22, 4:00PM)
	Inferences Concerning Proportions	10.1 – 10.3	
Week 11 (Nov. 19 & 21)	C X R Tables, Goodness of Fit Test	10.4 – 10.5	Assignment 9 (Dec. 6, 4:00PM)
	The Method of Least Squares	Selected topics from Ch. 11	
Week 12 (Nov. 26 & 28)	Regression Analysis		
	Correlation		
Week 13 (Dec. 3)	ANOVA***	Selected topics from Ch. 12	