

**Mahidol University International College**  
**Trimester III**  
**April – July 2019**

<b>Course Title</b>	<b>ICMA 151 – Statistics for Science I</b>
<b>Class Schedule</b>	10:00 - 11:50, Tuesday and Thursday Room 1419
<b>Instructor</b>	Assoc. Prof. Taweeratana Siwadune Email: taweeratana.siw@mahidol.ac.th Office Hours: Tuesday 12:30-1:30pm, or by appointment. Room 1309
<b>Recommended Text</b>	<i>Introduction to Probability and Statistics, 14th edition.</i> Mendenhall, Beaver, and Beaver. Thomson Learning, Inc.
<b>Course Description</b>	Statistical ideas and concepts; Probability and conditional probability; distribution functions; expected value; estimators; good estimators and hypothesis testing
<b>Past Exams</b>	Students can find some of the past exams and two formula lists which will be provided to them during the midterm and final examinations by visiting the following websites. <a href="http://www.muicmath.com/">http://www.muicmath.com/</a> <a href="http://www.muic.elearning.mahidol.ac.th/">http://www.muic.elearning.mahidol.ac.th/</a>

**Course Contents**

<b>Lecture</b>	<b>Topics</b>
	<b>Chapter 1</b> Describing Data with Graphs
1. 23 April	1.1 Variables and Data 1.2 Types of Variables 1.3 Graphs for Categorical Data 1.4 Graphs for Quantitative Data
2. 26 April	1.5 Relative Frequency Histograms <b>Chapter 2</b> Describing Data with Numeircal Measures 2.1 Describing a Set of Data with Numerical Measures 2.2 Measures of Center 2.3 Measures of Variability
3. 30 April	2.6 Mearsures of Relative Standing 2.7 The Five-Number Summary and the Box Plot <i>Introduction to Excel (Megastat)</i>
4. 2 May	<b>Chapter 4</b> Probability and Probability Distributions 4.1 The Role of Probability in Statistics

	4.2 Events and the Sample Space
	4.3 Calculating Probabilities Using Simple Events
	4.4 Useful Counting Rules
5. 7 May	***** Quiz 1 *****
	4.5 Event Relations and Probability Rules
	4.6 Conditional Probability, Independence, and the Multiplicative Rule
6. 9 May	***** Public Holiday *****
7. 14 May	4.7 Bayes' Rule
	4.8 Discrete Random Variables and Their Probability Distributions
8. 16 May	<b>Chapter 5</b> Several Useful Discrete Distributions
	5.2 The Binomial Probability Distribution
	5.3 The Poisson Probability Distribution
9. 21 May	5.4 The Hypergeometric Probability Distribution
	<b>Chapter 6</b> The Normal Probability Distribution
	6.1 Probability Distributions for Continuous Random Variables
10. 23 May	6.2 The Normal Probability Distribution
	6.3 Tabulated Areas of the Normal Probability Distribution
11. 28 May	***** Quiz 2 *****
	<b>Chapter 7</b> Sampling Distributions
	7.2 Sampling Plans and Experimental Designs
	7.3 Statistics and Sampling Distributions
12. 30 May	7.4 The Central Limit Theorem
	7.5 The Sampling Distribution of the Sample Mean
13. 4 June	***** Midterm Exam (Chapters 1, 2, 4, 5, 6 and 7) *****
14. 6 June	<b>Chapter 8</b> Large-Sample Estimation
	8.2 Statistical Inference
	8.3 Types of Estimators
	8.4 Point Estimation
	8.5 Interval Estimation
15. 11 June	8.6 Estimating the Difference between two Population Means
	8.7 Estimating the Difference between two Binomial Proportions
	<b>Chapter 9</b> Large-Sample Tests of Hypotheses
16. 13 June	9.1 Testing Hypotheses about Population Parameters
	9.2 A Statistical Test of Hypothesis
	9.3 A Large-Sample Test about a Population Mean
17. 18 June	9.4 A Large-Sample Test of Hypothesis for the Difference between Two Population Means
18. 20 June	***** Quiz 3 *****
	9.5 A Large-Sample Test of Hypothesis for a Binomial Proportion
	9.6 A Large-Sample Test of Hypothesis for the Difference between Two Binomial Proportions

19. 25 June	<b>Chapter 10</b> Inference from Small-Samples
	10.2 Student's t Distribution
	10.3 Small-Sample Inferences Concerning a Population Mean
20. 27 June	10.4 Small-Sample Inferences for the Difference between Two Means: Independent Random Samples
	10.5 Small-Sample Inferences for the Difference between Two Means: A Paired-Difference Test
21. 2 July	10.7 Comparing Two Population Variance
22. 4 July	<b>Chapter 12</b> Linear Regression and Correlation
	12.2 A Simple Linear Probabilistic Model
	12.3 The Method of Least Squares
	12.4 An Analysis of Variance for Linear Regression
23. 9 July	***** <b>Quiz 4</b> *****
	12.5 Testing the Usefulness of the Linear Regression Model
24. 11 July	+++++ Catch up and Review +++++
Thur 18 July	***** <b>Final Examination (Chapters 8, 9, 10 and 12)</b> *****

<b>Evaluation</b>	Homework	<del>5%</del>	10%
	4 Quizzes	<del>20%</del>	20%
	Midterm exam	<del>38%</del>	35%
	Final exam	<del>37%</del>	35%

### Letter Grade Distribution

Percentage (x)	Grade
$90 \leq x \leq 100$	A
$85 \leq x < 90$	B+
$80 \leq x < 85$	B
$75 \leq x < 80$	C+
$70 \leq x < 75$	C
$65 \leq x < 70$	D+
$60 \leq x < 65$	D
Below 60	F