

**STAT 1201– Statistics and Probability - 3(3, 0, 0)**  
**Summer Semester, Academic Year 2016-2017**

## Course Syllabus

### 1. Course Identification and General Information:

Course Title: <b>Statistics and Probability</b>	Course Code: <b>STAT 1201</b>
Course Level: <b>Summer</b>	Course Prerequisite: <b>None</b>
Lecture Time: <b>Sunday + Monday: 8:00 - 10:30 am</b>	Credit Hours: <b>3 (3+0+0)</b>

### 2. Faculty Member Responsible for the Course:

Name	Rank	Office Number and Location	Office Hours	Email Address
<b>Dr. Mohammed Arafah</b>	<b>Assistant Professor</b>	<b>Office of Vice Dean for Academic Affairs</b>	<b>Sun &amp; Mon 10:30- 11:00 am</b>	<b>arafah@KSU.EDU.SA</b>

### 3. Course Description:

Students are introduced to: Introduction to statistics; Frequency Tables; Measures of central tendency: Average, mode, and median; Measures of dispersion: Variance and standard deviation; Introduction to probabilities: Sample space, Events, axioms of probability; Conditional probabilities and Independence; Random variables.

### 4. Course Objectives:

The course aims to introduce students to statistics and probability.  
The student will know the following concepts and measures. He will also be able to find these measures for real life problems.

#### For statistics

- Why we need statistics
- Methods for presenting the data by tables and graphs.
- Measures of central tendency: arithmetic mean, weighted mean, median, and mode.
- Measures of dispersion: range, variance, standard deviation, coefficient of variation. Chebychev inequality.

#### For the probability

- Counting techniques, permutations, and combinations
- Principles of probability: random experiment, sample space, events, and algebra of events.
- Probability: probability of an event, axioms of probability, conditional probability, independent events, and Bayes theorem.
- Random variables and probability distributions: sample space.

## 5. Relationship of Course to Program Outcomes:

Outcome	Outcome Description	Contribution
(a)	An ability to apply knowledge of mathematics, science, and engineering	✓
(b)	An ability to conduct experiments/lab, as well as to analyze and interpret data	
(c)	An ability to function on multidisciplinary teams	
(d)	An understanding of professional and ethical responsibility	
(e)	An ability to communicate effectively	
(f)	A recognition of the need for, and an ability to engage in life-long learning	✓
(g)	A knowledge of contemporary issues	
(h)	An ability to use the techniques, skills, and modern tools	

## 6. Course References:

### 6.1 Textbooks:

مقدمة في الإحصاء والاحتمالات وتطبيقاتها باستخدام إكسل

Introduction to Statistics and Probability and their Applications using Excel

### 6.2 Support Material (Journals, Publications, etc):

None

### 6.3 Study Guide(s) (if applicable):

None

### 6.4 Homework and Laboratory Guide(s) (if applicable):

None

### 6.5 Websites:

None

## 7. Teaching Methods:

Lectures, Class discussion, Tutorials, Problem solving, etc.

## 8. Learning Outcomes:

1. Organize and present data by tables and graphs
2. Measure the central tendency: arithmetic mean, weighted mean, median, and mode.
3. Measure the dispersion: range, variance, standard deviation and coefficient of variation.
4. Use counting techniques, permutations, and combinations
5. Find the sample space of an experiment and the probability of an event
6. Apply the algebra of events
7. Find the conditional and unconditional probability

## 9. Methods of Assessment:

Assessment Instruments	Mark
Midterm Examination- 1	25
Midterm Examination- 2	25
Quizzes, Homework Assignments	10
Final Examination	40
<b>Total</b>	<b>100</b>

## 10. Course Policies:

- No late homework will be accepted.
- The quizzes may be pop up or announced, and may be given at anytime during class-time.
- Homework assignments are considered individual efforts. However, students are encouraged to share thoughts with others. Absolutely no copying and no plagiarism. Copyright should be respected. Academic dishonesty cases will be dealt with severely.
- All exams are closed book.
- The final exam will be comprehensive.

## 11. Course Academic Calendar

Lecture	Basic and support material to be covered	Homework/reports and their due dates
(1)	Introduction. Organization and presentation of data by tables and graphically.	
(2)	Measures of central tendency: arithmetic mean, weighted mean.	
(3)	Median, mode.	
(4)	Measures of dispersion: range, variance, standard deviation,	
(5)	Coefficient of variation. Chebychev inequality.	
(6)	Midterm Examination- 1	
(7)	Counting techniques, permutations, and combinations	
(8)	Counting techniques, permutations, and combinations	
(9)	Principles of probability: random experiment, sample space, events	
(10)	Probability: probability of an event, axioms of probability	
(11)	Midterm Examination- 2	
(12)	Conditional probability, independent events, and Bayes theorem.	
(13)	Conditional probability, independent events, and Bayes theorem.	
(14)	Introduction to Random variables	
	Final Examination	

## 12. Expected Workload:

On average students need to spend weekly 2 hours of study and preparation for each 50-minute lecture/tutorial.

## 13. Attendance Policy:

Absence from lectures and/or tutorials shall not exceed 25%. Students who exceed the 25% limit without an accepted medical or emergency excuse shall not be allowed to take the final examination and shall receive a grade of "DN" for the course.