



HANYANG UNIVERSITY

Hanyang International Summer School

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| Faculty Information | Name | Chang Wook Kang | | | | | |
| | E-mail | cwkang57@hanyang.ac.kr | | | | | |
| | Home University | Hanyang University | | | | | |
| | Department | Department of Industrial and Management Engineering | | | | | |
| | Homepage | | | | | | |
| Course Information | Class No. | 18034 | Course Code | GEN0036 | Credits | 3 | |
| | Course Name | Introduction to Statistics | | | | | |
| | Lecture Schedule | Mon-Thu /9:00~12:00 AM | | | | | |
| | Course Description | Big data, AI and Data analytics are very popular in the 4th Industrial Revolution era. Statistics is fundamental to the big data and AI regardless of major. This course covers the basics of probability and statistics such as random variable, distributions, population and sample, estimation, hypothesis testing, analysis of variance, regression analysis, design of experiments and so on. | | | | | |
| | Course Objective | The objectives of this course are three: 1. Understanding of random variable and its distribution 2. Understanding of estimation and hypothesis testing 3. Understanding of regression analysis and design of experiments | | | | | |
| | Prerequisite | Basic mathematics | | | | | |
| | Materials/Textbooks | 1. Probability & Statistics for Engineers and Scientists, Walpole, Myers, Myers, Ye, 9 th edition, Prentice Hall (optional) 2. Download eZ SPC software at https://www.hanyang.ac.kr/web/eng/it_s 3. Lecture note will be provided. | | | | | |
| Evaluation | Attendance | 10 % | Quiz | % | | | |
| | Assignment | 10 % | Mid-term Exam | 40 % | | | |
| | Presentation | % | Final Exam | 40 % | | | |
| | Group Project | % | Participation | % | | | |
| | Etc. | Evaluation Item | | | Ratio | | |
| | | | | | % | | |
| Daily Lecture Plan | Week 1 | Day 1 | Opening Ceremony | | | | |
| | | Day 2 | Introduction, Random experiment, Sample space, Event | | | | |

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| | | Day 3 | Definition of probability, Conditional probability, Bayes' theorem |
| | | Day 4 | Random variable, Discrete and continuous random variable |
| | Week 2 | Day 1 | Mean and variance of random variable |
| | | Day 2 | Covariance, Correlation coefficient, Bernoulli and Binomial distribution |
| | | Day 3 | Distributions (Poisson, Hypergeometric, Normal, Exponential) |
| | | Day 4 | Midterm exam |
| | Week 3 | Day 1 | Population and sample, parameter, statistics |
| | | Day 2 | Sampling distribution |
| | | Day 3 | Point estimation, Interval estimation |
| | | Day 4 | Hypothesis testing |
| | Week 4 | Day 1 | Regression analysis |
| | | Day 2 | Analysis of variance |
| | | Day 3 | Design of experiments |
| | | Day 4 | Final exam |