

Syllabus

Spring Semester 2019

1. Class Information

Course	Creative Applications of Statistics to Engineering		
Course #	GSQR025	Course Classification	Core Cultural Course
Department	National Statistics	Credit (hrs)	3 (3)
Instructor	Professor Sungsoe Rheem	TA	
Contact Info.		Contact Info.	
Class Time	Periods 8, Tue. Period 6-7, Wed.	Class Location	

2. Core Competencies

Frontier Spirit		Sharing and Collaboration		Pragmatic Practice		Creative Convergence		Global Leadership	
Challenging Spirit	Future Insights	Empathy	social Engagement	Professionalism	Problem Solving	Innovation	Creativity	Global Mind	Global Communication
				●	●		●		●

Very highly associated: ● Highly associated: ●

3. Teaching Methods

Class Activity	<input checked="" type="checkbox"/> Lecture	<input type="checkbox"/> Presentation	<input checked="" type="checkbox"/> Discussion	<input type="checkbox"/> Experiment	<input type="checkbox"/> Practice
	<input type="checkbox"/> Collaboration	<input type="checkbox"/> Private Teaching	<input type="checkbox"/> Collective Teaching	<input type="checkbox"/> Quiz	<input type="checkbox"/> Q & A
Attendance Check	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	Unsupervised Exam	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No

4. Evaluation

Quiz:	Midterm: ●	Final: ●	Attendance: ●	Total:
Evaluation Feedback	<input checked="" type="checkbox"/> Yes (Upon Request) <input type="checkbox"/> No	Evaluation Feedback	Abs ●, Rel.	

5. Study Plan

Class Description	This course deals with creative applications of statistics to engineering in experimental settings. Statistical design and analysis of experiments is the main topic for this course. Basic methods of experimental design and analysis will be taught in addition to fundamental ideas in dealing with statistical problems.
Association with core competences and departmental objectives	This course will provide students with pragmatic practice including professionalism and problem solving. Students will also see some creativity that was used in the construction of the framework and the making of the details for this course. In addition, through the effective use of English to pass on scientific knowledge, students will be able to enhance the ability for global communication.
Study Objectives	Students understand how statistics is used creatively for model estimation and response optimization in engineering.
Class Objectives	Students actively participate in class by speaking the statements in lecture notes after the professor. This will lead students to have positive attitude.
Prerequisite Subjects	None
Textbook & References	Textbook: Lecture notes written by Professor Sungsoe Rheem References: Box, G. E.; Hunter, J. S., Hunter, W. G., <i>Statistics for Experimenters: Design, Innovation, and Discovery</i> , 2nd Edition, Wiley, 2005
Homework	

6. Weekly Course Schedule

No	Date	Week	Topic	Text	Remark
1	3/4-3/8	1	Orientation		
2	3/9-3/15	2	Thematic Poem; Contents		
3	3/16-3/22	3	Introduction; Simple Model		
4	3/23-3/29	4	Estimations of the Mean and Variance in the Simple Model		
5	3/30-4/5	5	2nd-Order Model; Function Estimation		
6	4/6-4/12	6	Variance Estimation in the 2nd-Order Model		
7	4/13-4/19	7	Optimization in the 2nd-Order Model		
8	4/20-4/26	8	Midterm Exam		
9	4/27-5/3	9	Two-Factor Model; Experimental Design		
10	5/4-5/10	10	Function Estimation in the Two-Factor Model		
11	5/11-5/17	11	Variance Estimation in the Two-Factor Model		
12	5/18-5/24	12	Effects in the Two-Factor Model		
13	5/25-5/31	13	Interaction in the Two-Factor Model		
14	6/1-6/7	14	Synergy and Interaction		
15	6/8-6/14	15	Review and Discussion		
16	6/15-6/21	16	Final Exam		

7. Support for Disabled Students

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8. Student Learning Ethics and Obligations

Students participating in the educational activities of our school have the following general obligations in all processes of taking courses (lecture attendance, creation and submission of assignments, examination, etc.):

- Learners actively participate in all learning with honesty and passionate attitudes based on the purpose of the university and the educational philosophy of our school.
- Learners are aware of their position as students receiving higher education and devote themselves to creative learning based on moral sensitivity.
- Learners must faithfully implement matters promised by faculty members and fellow students in connection with educational activities.
- Learners respect the character of teachers and other students and observe basic manners.

In the course of learning, plagiarism and the duplicate use of other class tasks, when it is found that it is acquired by dishonest behavior such as examination misconduct or other unreasonable method of obtaining unit, even if it is a unit already certified, will result in the cancellation of that unit. Also, you can undertake disciplinary actions such as suspension, withdrawal, and expulsion, taking into account the circumstances of the act.

The school operates the plagiarism inspection system (Blackboard) to promote the awareness of learning ethics and to promote creativity, and students must confirm whether they fall under plagiarism in advance when submitting tasks.