

# 수업 계획서

학년도/학기: 2012 학년도 1 학기  
교과목명: 대수및기하모델링세미나

학수번호-분반: MTH5101-41

이수구분: 전공  
교강사명: 이상구

수강대상학부	자연과학부			
선이수과목 (권장)	선형대수학, 미분방정식			
수업진행 정보	수업시간	월[FF]16:30-17:45, 목[DD]13:30-14:45		
	강의실	자연과학캠퍼스	기초학문관 1층 005 【51152】	
관련 도서 및 참고자료				
구분	제목	저자	발행년도	출판사
교재	Mathematical Modeling with Excel	Neuwirth and Arganbright	2004	Thompson Brooks/Cole
부교재	Mathematical Modeling using Discrete Dynamical Systems	Marotto	2006	Thompson Brooks/Cole
교재	Matrix Analysis	Roger A. Horn, Charles R. Johnson	1990	Cambridge Univ. Press
강좌진행 개요	<p>Mathematical modeling with Sage and Excel (PBL course!!)</p> <p><a href="http://www.youtube.com/watch?v=adWzUKKmO2k">http://www.youtube.com/watch?v=adWzUKKmO2k</a></p> <p>Math Modeling- Exponential(8)</p> <p>Math Modeling- Our WorldI(9)</p> <p><a href="http://matrix.skku.ac.kr/2011-Album/MathModeling-9/MathModeling-9.html">http://matrix.skku.ac.kr/2011-Album/MathModeling-9/MathModeling-9.html</a></p> <p>Math Modeling- Geometry(10)</p> <p>Math Modeling- Arts(11)</p> <p>Math Modeling- Politics(12)</p> <p>Math Modeling- Business(13)</p>			
교과목 목표	<p>Mathematical modeling with Sage and Excel (PBL course!!) Mathematical modeling usually begins with a situation in the real world, sometimes in the relatively controlled conditions of a laboratory and sometimes in the much less completely understood environment of meadows and forests, offices and factories, and everyday life. We will start from basic knowledge in Matrix Theory and history of matrix and modern mathematics. Then we will start to practice some Mathematical Model in our working area. We will cover the most of the traditional and recent Linear Models. Your participation will be expected.</p>			
수업내용				
1주차	<p>We will start from basic knowledge in Matrix Theory and a discussion on PBL plan!!</p> <p>Mathematics is studied because it is a rich and interesting discipline, because it provides a set of ideas and tools that are effective in solving problems which arise in other fields.</p>			
2주차	<p>History of matrix and modern mathematics in USA and Korea.</p> <p>Mathematics is studied because it provides concepts useful in theoretical studies in other fields.</p>			
3주차	<p>Then we will start to practice some Mathematical Model in our working area.</p>			
4주차	<p>Introduction to Mathematical Modeling</p> <p>Ch. 1 Introductory Models</p> <p>Fibonacci Numbers, Growth Models</p> <p>Extended Growth Models, Comparing Different Growth Models</p> <p>Ch. 2 Dynamical Models and Difference Equations 1</p>			

# 수업 계획서

학년도/학기: 2012 학년도 1 학기      학수번호-분반: MTH5101  
교과목명: 대수및기하모델링세미나(MTH5101)

이수구분: 전공  
교강사명: 이상구

수업내용								
5주차	Dynamical Models and Difference Equations 2							
6주차	Ch. 3 Physics Applications							
7주차	Ch. 4 Number Theory							
8주차	Mid term Exam, Project Proposal							
9주차	Ch. 5 Curve Fitting 1							
10주차	Ch. 5 Curve Fitting 2							
11주차	Ch. 6 Creative Mathematics in Everyday Settings 1							
12주차	Ch. 6 Creative Mathematics in Everyday Settings 2							
13주차	Ch. 7 Combinatorics 1							
14주차	Ch. 7 Combinatorics 2							
15주차	Ch. 8 Finding Optimal Solutions							
16주차	Project Presentation, Final Exam							
과제물	Reading the sections of the text related to the problems is part of the homework assignment. Assigned problems will be posted after each class. You will create some Mathematical Model in your working area.							
평가 방법	출석	과제/토론	중간시험	기말시험	평소학습	발표	기타	합계
	10%	10%	30%	30%	10%	0%	10%	100%
기타	Mid term Exam will be based on the following topics : &#8226; Linear Equations &#8226; Linear Systems and Matrices &#8226; Leontief Input/Output Analysis &#8226; Markov Processes &#8226; Data Fitting – Polynomial Interpolation, Least Squares &#8226; Difference Equations							

\* 시험 부정행위, 기타 부정행위로 취득한 과목의 성적은 F 처리됩니다.  
(성균관대학교학칙 시행세칙(학사과정) 제25조)