

Tamkang University Academic Year 105, 1st Semester Course Syllabus

Course Title	A TOUR TO THE WONDERLAND OF MATHEMATICS	Instructor	CHIAN-JEN WANG
Course Class	TNUUB0F NATURAL SCIENCES, 0F	Details	<ul style="list-style-type: none"> ◆ Required ◆ One Semester ◆ 2 Credits
Academic Aim of Education			
<p>By exploring natural laws and studying scientific methods, to let students understand the impact of science and technology on human life, and to cultivate in them the ability to think independently, and to discover, analyse and solve problems. Also, throu.</p>			
Schoolwide essential virtues			
<ul style="list-style-type: none"> A. A global perspective. B. Information literacy. C. A vision for the future. D. Moral integrity. E. Independent thinking. F. A cheerful attitude and healthy lifestyle. G. A spirit of teamwork and dedication. H. A sense of aesthetic appreciation. 			
Course Introduction	<p>The aim of this course is to explore students to different areas of mathematics and to encourage students to appreciate the beauty and effectiveness of mathematics.</p>		

The Relevance among Teaching Objectives, Objective Levels and Schoolwide essential virtues

I.Objective Levels (select applicable ones) :

- (i) Cognitive Domain : C1-Remembering, C2-Understanding, C3-Applying,
C4-Analyzing, C5-Evaluating, C6-Creating
- (ii) Psychomotor Domain : P1-Imitation, P2-Mechanism, P3-Independent Operation,
P4-Linked Operation, P5-Automation, P6-Origination
- (iii) Affective Domain : A1-Receiving, A2-Responding, A3-Valuing,
A4-Organizing, A5-Charaterizing, A6-Implementing

II.The Relevance among Teaching Objectives, Objective Levels and Schoolwide essential virtues :

- (i) Determine the objective level(s) in any one of the three learning domains (cognitive, psychomotor, and affective) corresponding to the teaching objective. Each objective should correspond to the objective level(s) of ONLY ONE of the three domains.
- (ii) If more than one objective levels are applicable for each learning domain, select the highest one only. (For example, if the objective levels for Cognitive Domain include C3,C5,and C6, select C6 only and fill it in the boxes below. The same rule applies to Psychomotor Domain and Affective Domain.)
- (iii) Determine the Schoolwide essential virtues that correspond to each teaching objective. Each objective may correspond to one or more Schoolwide essential virtues at a time. (For example, if one objective corresponds to three Schoolwide essential virtues: A,AD, and BEF, list all of the three in the box.)

No.	Teaching Objectives	Relevance	
		Objective Levels	Schoolwide essential virtues
1	Students are able to appreciate the beauty and effectiveness of mathematics.	C3	BE

Teaching Objectives, Teaching Methods and Assessment

No.	Teaching Objectives	Teaching Methods	Assessment
1	Students are able to appreciate the beauty and effectiveness of mathematics.	Lecture, Discussion	Written test, Participation

Course Schedule

Week	Date	Subject/Topics	Note
1	105/09/12~ 105/09/18	Exploring infinity	
2	105/09/19~ 105/09/25	Fun with prime numbers	
3	105/09/26~ 105/10/02	Modular arithmetic	
4	105/10/03~ 105/10/09	Introduction to cryptography	
5	105/10/10~ 105/10/16	The theory of chaos- periodic motion and attractor	
6	105/10/17~ 105/10/23	The theory of chaos- strange attractor and chaos	
7	105/10/24~ 105/10/30	Fractal geometry – non integer dimension	

8	105/10/31 ~ 105/11/06	Fractal geometry – L- system , golden angle and golden ratio	
9	105/11/07 ~ 105/11/13	Magic squares	
10	105/11/14 ~ 105/11/20	Midterm Exam Week	
11	105/11/21 ~ 105/11/27	Continued fractions	
12	105/11/28 ~ 105/12/04	Eulerian paths and cycles	
13	105/12/05 ~ 105/12/11	Graph coloring	
14	105/12/12 ~ 105/12/18	Game theory (I)	
15	105/12/19 ~ 105/12/25	Game theory (II)	
16	105/12/26 ~ 106/01/01	Probability of lottery	
17	106/01/02 ~ 106/01/08	Interesting probability problems	
18	106/01/09 ~ 106/01/15	Final Exam Week	
Requirement	This course is structured into 4 components instructed by 4 professors with different specializations. Your performance in each component of the course will count for 25% of your final grade.		
Teaching Facility	Computer, Projector		
Textbook(s)			
Reference(s)			
Number of Assignment(s)	(Filled in by assignment instructor only)		
Grading Policy	◆ Attendance : % ◆ Mark of Usual : % ◆ Midterm Exam : % ◆ Final Exam : % ◆ Other <<(see "Requirement")>> : 100.0 %		
Note	This syllabus may be uploaded at the website of Course Syllabus Management System at http://info.ais.tku.edu.tw/csp or through the link of Course Syllabus Upload posted on the home page of TKU Office of Academic Affairs at http://www.acad.tku.edu.tw/CS/main.php . ※ Unauthorized photocopying is illegal. Using original textbooks is advised. It is a crime to improperly photocopy others' publications.		