ORTA DOĞU TEKNİK ÜNİVERSİTESİ UYGULAMALI MATEMATİK ENSTİTÜSÜ

RAPOR
2009

İÇİNDEKİLER

ÖNSÖZ

Orta Doğu Teknik Üniversitesi'nde Uygulamalı Matematik Enstitüsü kurulması; Milli Eğitim Bakanlığı'nın 8/5/2002 tarihli ve 12293, 12296 sayılı yazıları, 28/3/1983 tarihli ve 2809 sayılı kanunun değişik ek 30. maddesine göre, Bakanlar Kurulu'nca 16/5/2002 tarihinde kararlaştırılmıştır ve bu karar 21 Haziran 2002 tarihinde resmi gazetede yayınlanmıştır. Enstitü eğitim faaliyetlerini Kriptografi, Bilimsel Hesaplama, Finansal Matematik, Finansal Matematik Hayat Sigortası Opsiyonu ve bu yıl açılan Aktüerya Bilimleri programı ile aşağıdaki misyonlar çerçevesinde sürdürmektedir:

I. Orta Doğu Teknik Üniversitesi'nin araştırma potansiyeli ve ülkemizin ihtiyaçları göz önüne alınarak, disiplinler arası matematik bazlı araştırma/uygulama alanları belirlemek ve bu çerçevede lisansüstü eğitim programlarını geliştirmek. Üniversitemizde yapılmakta olan matematik ağırlıklı araştırmaları koordine ederek Enstitü bünyesinde disiplinler-arası bir çalışma ortamı oluşturmak, bu alanlarda araştırmaya yönelik konferanslar/yaz okulları düzenlemek ve uluslararası işbirliği olanaklarını araştırmak/hayata geçirmek.

II. Matematiğin; doğayı, teknolojik ve ekonomik süreçleri daha iyi anlama yolunda bilim adamlarının ortak dili olduğundan hareketle, lisans/lisansüstü eğitimde ve araştırmalarda matematik kullanımının hem nicelik hem de nitelik açısından arttırılması yolunda çalışmalarda bulunmak, bu çerçevede yeni, uygulanabilir matematik konularında araştırmacıları bilgilendirmek ve bu amaca yönelik araştırmalar yapmak.

III. Uygulamalı matematik alanında ODTÜ-Sanayi/Kamu kuruluşları işbirliğini, gerek proje ve ürün geliştirerek gerekse kısa süreli eğitim/araştırma toplantıları düzenleyerek hayata geçirmek.

Bu rapor Uygulamalı Matematik Enstitüsü'nün misyonu çerçevesinde 01.01.2009-31.12.2009 tarihleri arasındaki faaliyetleri içermektedir.

Enstitü Yönetimi

Müdür

Prof. Dr. Ersan AKYILDIZ

(Matematik Bölümü)

Müdür Yardımcıları

Y. Doç. Dr. İlkay ULUSOY

(Elektrik Elektronik Müh.Bl.)

Dr. Burak YEDİERLER

(Fizik Bölümü)

Enstitü Kurulu[1]

Prof. Dr. Ferruh ÖZBUDAK

(Matematik Bölümü)

Prof. Dr. Bülent KARASÖZEN

(Matematik Bölümü)

Y. Doç. Dr. Işıl EROL

(İktisat Bölümü)

Doç. Dr. Sevtap KESTEL[2]

(Aktüerya Bilimleri EABD)

Enstitü Yönetim Kurulu[1]

Prof. Dr. Haluk AKSEL

(Makina Müh.Bölümü)

Y. Doç. Dr. Seza DANIŞOĞLU

(İşletme Bölümü)

Prof. Dr. Mete SEVERCAN

(Elektrik Elektronik Müh.Bl.)

(1) Enstitü Yönetimi, bu kurulların doğal üyeleridir.
(2) Dr. B. Burçak BAŞBUĞ ERKAN, Aktüerya Anabilim dalı Başkanlığı görevinden 17 Eylül 2009 tarihinde ayrılmış yerine Y. Doç. Dr. Sevtap KESTEL atanmıştır.

ÖZET BİLGİLER

- Enstitünün 2009 yılı faaliyetlerine 7 UME, 34 ODTÜ içi, 20 ODTÜ dışı bağlantılı öğretim üyesi katkıda bulunmuşlardır.
- Enstitüde toplam 16 araştırma görevlisi vardır, bunların 7'si Öğretim Üyesi Yetiştirme Programı (ÖYP) ve biri de 35. madde kapsamında görev almaktadır. Bir asistanımız ise Amerika Birleşik Devletleri Florida State Üniversitesi'nde YÖK burslusu olarak çalışmalarını sürdürmektedir.
- Enstitüde toplam 169 öğrenci eğitimini sürdürmektedir. Bu öğrencilerin 14'ü Aktüerya Bilimleri, 28'i Bilimsel Hesaplama, 61'i Finansal Matematik, 66'sı ise Kriptografi programındadır.
- Bu faaliyet yılında Enstitü anabilim dallarından 11 tezli yüksek lisans, 12 tezsiz yüksek lisans ve 2 doktora öğrencisi mezun olmuştur.
- Enstitü anabilim dallarının 11 araştırma grubu bulunmaktadır.
- Enstitü bağlantısı belirtilmiş olarak 32 yurtdışı yayın, 11 yurtdışı tebliğ, 75 yurtdışı sunum, 1 yurtiçi yayın ve 1 yurtiçi sunum gerçekleştirilmiştir.
- Enstitü bağlantısı belirtilmiş 5 özel sayılı dergi editörlüğü yapılmıştır.
- Enstitü tarafından "Workshop on Recent Advanced in Probability and Statistics on the Memory of Prof. Jürgen Lehn" konulu bir çalıştay (23-24 Nisan 2009) düzenlenmiştir.
- Enstitü öğretim üyeleri, 21 çalıştay/sempozyum/konferans/yazokulu organizasyonunda görev almışlardır.
- Enstitü bünyesinde yürütücülüğü yapılan 18, araştırmacı olarak yer alınan 3 proje bulunmaktadır.
- Enstitüyü yurtdışından 19 öğretim üyesi ziyaret ederken, 43 öğretim elemanı da enstitü tarafından desteklenerek yurt dışında görevlendirilmiştir.
- Dr. B. Burçak BAŞBUĞ ERKAN, Aktüerya Anabilim dalı Başkanlığı görevinden 17 Eylül 2009 tarihinde ayrılmış yerine Doç. Dr. Sevtap KESTEL atanmıştır.

ENSTİTÜNÜN PROGRAMLARI

Aktüerya Bilimleri	**Bilimsel Hesaplama**	**Finansal Matematik**	**Kriptografi**
Tezli Yüksek Lisans	Tezli Yüksek Lisans	Tezli Yüksek Lisans	Tezli Yüksek Lisans
Tezsiz Yüksek Lisans	Doktora	Tezsiz Yüksek Lisans	Tezsiz Yüksek Lisans
		Doktora	Doktora

İNSAN KAYNAKLARI

Öğretim Elemanları
Prof. Dr. Gerhard- Wilhelm Weber
Prof. Dr. Martin Rainer
Doç. Dr. Emrah Çakçak
Y. Doç. Dr. Sevtap Kestel
Y. Doç. Dr. Hakan Öktem
Y. Doç. Dr. Ömür Uğur
Y. Doç. Dr. Ali Devin Sezer

Araştırma Görevlileri
Sedat Akleylek (ÖYP, 19 Mayıs Üniv.)
Derya Altıntan (ÖYP, Selçuk Üniv.)
Derviş Bayazıt (YÖK Bursu Florida State Univ., USA)
Mehmet Burak Bozdemir
Canan Çimen
Çağdaş Çalık
Nüket Erbil (ÖYP, Fırat Üniv.)*
Zeynep S. Alparslan Gök (ÖYP, Süleyman Demirel Üniv.)**
İ. Ethem Güney*
Rita İsmailova (ÖYP, Kırgızistan)
Ayşegül İşcanoğlu Çekiç (ÖYP, Selçuk Üniv.)
Turgut Hanoymak (ÖYP, Yüzüncü Yıl Üniv.)
Barış Bülent Kırlar (ÖYP, Süleyman Demirel Üniv.)
Ayşe Sarıaydın (ÖYP, Yüzüncü Yıl Üniv.)
Cihangir Tezcan
Önder Türk
Oğuz Yayla
Enes Yılmaz (35. madde)
Serkan Zeytun

DOSAP/POST-DOC

- **Pooya Farshim** (İngiltere), Kriptografi Anabilim Dalı, Öğretim Üyesi Prof. Dr. Ersan Akyıldız (5 Mayıs 2008-12 Ocak 2009).
- **Adnane Sboui** (Tunus), Kriptografi Anabilim Dalı, Öğretim Üyesi Prof. Dr. Ferruh Özbudak (13 Ağustos 2008- 13 Ağustos 2009).

*2009 yılı içinde araştırma görevliliğinden ayrılmışlardır.
**2009 yılı içinde üniversitelerine dönmüşlerdir.

BAĞLANTILI ÖĞRETİM ÜYELERİ

Matematik Bölümü	Marat U. Akhmet	**İşletme Bölümü**	Nuray Güner
	Ersan Akyıldız		Adil Oran
	Feza Arslan		Seza Danışoğlu
	Ali Doğanaksoy		
	Bülent Karasözen	**Kimya Müh. Bl.**	Yusuf Uludağ
	Ferruh Özbudak		Gürkan Karakaş
	Münevver Tezer		
	Muhiddin Uğuz		
		Fizik Bölümü	Yusuf İpekoğlu
Elektrik-Elektronik	Yeşim Serinağaoğlu Doğrusöz		Burak Yedierler
Mühendisliği Bölümü	Nevzat G. Gençer		
	M. Kemal Leblebicioğlu	**Endüstri Müh. Bl.**	Gülser Köksal
	Mete Severcan		
	İlkay Ulusoy		
	Melek Yücel		
	Cüneyt Bazlamaçcı		
		Kimya Bölümü	Ali Gökmen
İstatistik Bölümü			
	B. Burçak Başbuğ		
	İnci Batmaz	**Beden Eğitimi ve Spor Bl.**	Feza Korkusuz
	Zeynep Kalaylıoğlu		
	Ceylan Yozgatlıgil		
		Enformatik Enstitüsü	Ü.Erkan Mumcuoğlu
İktisat Bölümü			
	Işıl Erol		
	Esma Gaygısız	**Makine Müh. Bl.**	Haluk Aksel
Biyoloji Bölümü	Semra Kocabıyık		

ÜNİVERSİTELER

ANKARA ÜNİV. **İstatistik Bölümü**	Ömer Gebizlioğlu	**KOÇ ÜNİV.** **Mühendislik Fakültesi**	Metin Türkay
		UNIV. OF CALIFORNIA **SANTA BARBARA**	Çetin Kaya Koç
BAHÇEŞEHİR ÜNİV. **Department of Computer** **Education&Instructional** **Technologies**	Irini Dimitriyadis Süreyya Özöğür	**RMIT UNIV.** **Matematik Bölümü**	Serdar Boztaş
DİCLE ÜNİV. **İstatistik Bölümü**	Pakize Taylan	**TRAKYA ÜNİV.** **İktisat Bölümü**	Kasırga Yıldırak
DOĞUŞ ÜNİV. **Matematik Bölümü**	İsmail Güloğlu	**TOBB-ETU** **Matematik Bölümü**	Zülfükar Saygı
FLORIDA STATE UNIV. **Department of Mathematics**	Giray Ökten		
		CONCORDIA-UNIVERSITY- **JOH MOLSON SCHOOL OF** **BUSİNESS** Department of Finance	Doğan Tırtıroğlu
İZMİR YÜKSEK TEKNOLOJİ **ENSTİTÜSÜ** **Matematik Bölümü**	Ali İhsan Neslitürk		

KURUMLAR

KAISERSLAUTERN UNIV.	Ralf Korn	**EGESİTAŞ**	Tolga Yalçın
KIRIKKALE ÜNİV. **İstatistik Bölümü**	Fatih Tank	**TCMB**	C.Coşkun Küçüközmen
MAX-PLANCK ENSTITUTE	Jost Jurgen	**TÜBİTAK-UEKAE**	Orhun Kara
		DİĞER	Azize Hayfavi Yeliz Yolcu

İDARİ PERSONEL

Sekreter	Nejla Erdoğdu Rukiye Ekinci Figen Varol	**İdari Amir**	Saffet Aykın
		Görevli	Muharrem Kayabel Serkan Demiröz
Memur	M. Kemal Yaşar		
TÜBİTAK-KAMU Proje Elemanı	Burçin Ak*		

* 21.5.2009 tarihinde bu görevinden ayrılmıştır.

PROTOKOLLER

Universitat Kaiserslautern (Germany) and Middle East Technical University		Cooperation in the Field of Financial and Insurance Mathematics at Institute of Applied Mathematics
University of the Aegean (Greece) and Middle East Technical University		Cooperation in the fields of Financial Mathematics, Actuarial Sciences and Establishment of a Joint Doctoral Program at Institute of Applied Mathematics
The Institute of Mathematics of The Polish Academy of Sciences (Poland) and Institute of Applied Mathematics and Department of Mathematics		Memorandum on Extending and Strengthening Links Beetween Polish Academy of Sciences and the Department of Mathematics and Institute of Applied Mathematics
Laboratoire de Mathématiques et Applications Université de La Rochelle (France) and Institute of Applied Mathematics		Turkish-French University and Scientific Cooperation Projects: Exchange of know-how in Financial Mathematics, Development of common teaching and research programs, Joint participation to European research projects.
University of Ballarat, (Australia) and Middle East Technical University		Collaboration between the Centre for Informatics and Applied Optimization, University of Ballarat Australia, and the Institute of Applied Mathematics, the Middle East Technical University, Turkey.
Bilgi Teknolojileri ve İletişim Kurumu- ODTÜ		Bilgi ve İletişim Teknolojileri Konularında Eğitim, Araştırma, Geliştirme Çalışmaları ve Uygulamalarında İşbirliği Yapılması, yürütücü, Uygulamalı Matematik Enstitüsü Müdürlüğü, ODTÜ
- MPI for Mathematics in the Sciences, Research Group on Complex Systems, Leipzig (Australia) - Interdisciplinary Center for Bioinformatics, University of Leipzig (Australia) - The Institute of Applied Mathematics - CAS-MPG Partner Institute for Computational Biology, Shanghai (China) - Koç University - Işık University		Collaboration in the fields of mathematical modeling of biological networks, network dynamics and information processing, algebraic structure of graphs and discrete and continuous optimization problems in computational biology.
The ValuePrice AG(Germany) and Middle East Techical University		Cooperation is intended to contribute to scientific and industrial cooperation and Exchange between both countries at Institute of Applied Mathematics
Universitat Ulm LLP (Lifelong Learning Programme) ERASMUS Academic Years 2009/10-2011/12(Germany) and Middle East Technical University		Both partievs agree to abide by the principles and conditions set out inthe Guldelines for Applicants and the Erasmus Charter at Institute of Applied Mathematics
Universita deglii Studi dell'Aquila (Italy) ERASMUS Academic Years 2008/2013 and Middle East Technical University		Both parties agree to adhere to the principles and conditions as stated in the Erasmus University charter and conditions are stated in the LLP/Erasmus Guidelines at Institute of Applied Mathematics

İLİŞKİDE BULUNDUĞUMUZ DİĞER ARAŞTIRMA KURUMLARI

- Department of Mathematics, Illinois State University, USA, in Biomathematics.
- Russian Academy of Sciences, Department of the Computational Methods of Forecasting, Moscow.
- Max-Planck Institute, Germany.
- Faculty of Mathematics and Economics, University of Ulm, LLP (Lifelong Learning Programme), (Germany) Erasmus Program.
- Center of Research-Euro-Mediterranean- in Mathematics and Their Applications, CREMMA, in Tunisia.
- Department of Mathematics, Darmstadt University of Technology (Germany), DAAD (German Academical Exchange Program) Program in Optimization Theory.
- Eureka Ibero America, Iberian-American Network of Knowledge Discovering, Iberian American Program of Science.
- IBM (Research Centers in New York, Zurich and Haifa)
- Department of Mathematics, Eindhoven University of Technology, The Netherlands.
- Department of Mathematics, University of L'Aquila, Italy, European Erasmus Mundus Programme.
- Department of Mathematics, Universitat Kaiserslautern (Germany)

ÖĞRENCİ BİLGİLERİ

SIAM-IAM ODTÜ ÖĞRENCİ TOPLULUĞU

SIAM (Society of Industrial and Applied Mathematics) IAM (ODTÜ) Öğrenci Topluluğu; Uygulamalı Matematik Enstitüsü'nün çalışmaları sonucu Amerika ve Kanada dışında kurulan ilk SIAM öğrenci grubudur. Grubun amaçları, SIAM'ı ve SIAM'ın faaliyetlerini Üniversite'de ve Türkiye'de tanıtmaktır. Grup hakkında ayrıntılı bilgi www.siam.metu.edu.tr adresinde verilmiştir.

Enstitümüzün Toplam Öğrenci Sayısı:
169

2009 yılında Kayıt Yaptıran Öğrenci Sayısı:
59

2009 Yılında Mezun Olan Öğrenci Sayısı*:
25

Yüksek Lisans Tezli	Yüksek Lisans Tezsiz	Doktora
11	12	2

BAŞVURULAR

	2009-2010		
	BAŞVURU	KABUL	KAYIT
Aktüerya Bilimleri	16	16	11
Bilimsel Hesaplama	13	9	6
Finansal Matematik	60	41	20
Kriptografi	35	27	22
Toplam	**124**	**93**	**59**

* Bu öğrencilerin listesi **Ek 4**'de verilmiştir.

Enstitümüz Öğrencilerinin Programlara Göre Dağılımı

Anabilim Dalı	Yüksek Lisans	Doktora	Bilimsel Hazırlık	İngilizce Hazırlık	İzinli
Aktüerya Bilimleri (14)	14	-	-	-	-
Bilimsel Hesaplama (28)	12	11	-	1	4
Finansal Matematik (61)	35	13	6	-	7
Kriptografi (66)	22	33	3	-	8
Toplam: (169)	83	57	9	1	19

2009 yılında Kayıt Yaptıran Öğrencilerin B.S. Derecelerini Aldıkları Bölümlere Göre Dağılımları*

MATH	STAT	BA	CENG	IE	Avionics Eng.	ECON	EME	AEE	CE	BIOL
31	6	5	4	3	3	2	2	1	1	1

UME Derslerini Alan Öğrencilerin Bölümlere Göre Dağılımı**

Dönem	UME	M	E	P	ME	ES	B	G	CE	C	E	STAT	I	BME	A	IR	B	Özel Öğr.	T
2008-2009 II	201	11	8	5	3	1	-	3	-	2	-	-	-	3	-	2	1	9	249
2009-2010 I	243	4	3	2	1	-	6	3	3	6	2	2	1	2	3	1	2	17	301

Dönemsel Ders İstatistikleri:

	Verilen Ders Sayısı	Toplam Öğrenci Sayısı	Ders Başına Verilen Not Sayısı
2008-2009 II.Dönem	21	249	12
2009-2010 I.Dönem	22	301	14

*Bölüm isimlerinde ODTÜ Katalogunda ki kısaltmalar kullanılmıştır.
** Enstitümüzde 2008-2009 II ve 2009-2010 I. Döneminde verilen derslerin listesi **Ek 6**'da verilmektedir.

Öğrenci Başarı Durumları

	2008-2009 I.Dönem				2008-2009 II.Dönem			
	Başarılı	Başarısız	İlişiği Kesilen	İzinli	Başarılı	Başarısız	İlişiği Kesilen	İzinli
Kriptografi (Bil.Haz.)	6	-	1	-	1	-	-	-
Kriptografi (M.Sc.)	23	3	-	1	23	5	1	2
Kriptografi (Ph.D.)	32	2	3	2	28	-	2	4
Bilimsel Hesaplama (M.Sc.)	11	-	-	-	11	1	-	1
Bilimsel Hesaplama (Ph.D.)	12	-	-	1	11	-	-	-
Finansal Matematik (Bil. Haz.)	3	-	-	-	1	-	-	-
Finansal Matematik (M.Sc.)	24	13	7	1	26	7	4	2
Finansal Matematik (Ph.D.)	11	-	2	6	14	-	-	4
Hayat Sigortası (M.Sc.)	2	-	-	-	-	-	-	-
Aktüerya Bilimleri (M.Sc.)	3	3	-	-	6	-	-	-
TOPLAM (172+154)	**127**	**21**	**13**	**11**	**121**	**13**	**7**	**13**

ÖYP Öğrencileri Başarı Durumları

Üniversitesi	Bilimsel Hesaplama			Finansal Matematik			Kriptografi			Başarılı	Başarısız	Mezun
	YL	Doktora	LSD	YL	Doktora	LSD	YL	Doktora	LSD			
Fırat Üniversitesi ELAZIĞ	-	-	-	1	-	-	-	-	-	-	1	-
Selçuk Üniversitesi KONYA	-	1	-	-	1	-	-	-	-	2	-	-
Süleyman Demirel Üniversitesi ISPARTA	-	-	1	-	-	-	-	1	-	1	-	1
Yüzüncü Yıl Üniversitesi VAN	1	-	-	-	-	-	-	-	1	2	-	-
Ondokuz Mayıs Üniversitesi SAMSUN	-	-	-	-	-	-	-	1	-	1	-	-
Kırgız Türkiye Manas Üniversitesi	-	-	-	-	-	-	-	1	-	1	-	-

ARAŞTIRMA FAALİYETLERİ

YAYINLAR/TEBLİĞLER*

Yurtdışı Yayın	Yurtdışı Tebliğ	Yurtdışı Konferanslarda Sunum
32	**11**	**75**

SCI-EXPANDED LİSTESİNDEKi DERGİLERDE Kİ YAYINLAR

- **W. Meidl, F. Özbudak**, "Linear Complexity over F_q and over F_{q^m} for linear recurring sequences", Finite Fields and Their Appliations, vol. 15, pp. 110-124, 2009. SCI-A
- **M. Cenk, F. Özbudak**, "Improved Polymnomial multiplication formulae over F_2 using Chinese Remainder Theorem", IEEE Transcations on Computers, vol. 58, no 4, pp. 572-576, 2009 . SCI-A
- **F.-W. Fu, H. Niederreiter, F. Özbudak**, "Joint linear complexity of multisequences consisting of arbitrary linear recurring sequences", Finite Fields and Their Applications, vol. 15, no 4, pp. 475-496, 2009. SCI-A
- **H. Özadam, F. Özbudak**, "A note on negacyclic and cyclic codes of length p^s over a finite field of characteristic p", Advances in Mathematics of Communications, vol. 3, no 3, pp. 265-271, 2009. SCI-A
- **G.-W. Weber, E. Kropat, B. Akteke-Öztürk, Z.-K. Görgülü**, "A survey on OR and mathematical methods applied on gene-environment Networks", Central European Journal of Operations Research (CEJOR) 17, 3, pp. 315-341, 2009. SCI-Exp.
- **Z. Barzily, Z. Volkovich, B. Akteke-Öztürk, G.-W. Weber**, "On a minimal spanning tree approach in the cluster validation problem", in the special issue of INFORMATICA 20, 2 pp. 187-202, 2009. SCI-Exp.
- **M.U. Akhmet**, "Dynamical synthesis of quasi-minimal sets", Int. J. Bifurcation and Chaos, 19, no. 7 (2009) 1-5. SCI-A
- **M.U. Akhmet**, "Shadowing and dynamical synthesis", Int. J. Bifurcation and Chaos, Int. J. Bifurcation and Chaos, 19, no. 10 (2009) 1-8. SCI-A
- **M.U. Akhmet**, "Li-Yorke chaos in the system with impacts", J. Math. Anal. Appl. 351 no. 2, pp. 804-810, 2009. SCI-A
- **M.U. Akhmet**, "The complex dynamics of the cardiovascular system", Nonlinear Anal. 71 pp. e1922-e1931, 2009. SCI-A
- **D. Altıntan, Ö. Uğur**, "Variational Iteration Method for Sturm-Liouville Differential Equations", Computers and Mathematics with Applications, 58(2), pp. 322-328, 2009. SCI-A
- **K. Yapıcı, B. Karasözen, Y. Uludağ**, "Finite Volume Simulation of Viscoelastic Laminar Flow in a Lid-driven Cavity", Journal of Non-Newtonian Fluid Mechanics,164, pp. 51-65, 2009. SCI-A
- **B. Karasözen, H, Öktem, M. Kahraman**, "A Model of Angiogenesis by Hybrid Systems with Delay on the Piecewise Constant Part", Journal of Process Control, 19, pp. 1257-1264, 2009. SCI-A
- **A. Aydın, B. Karasözen**, "Multi-symplectic integration of coupled non-linear Schrödinger system with soliton solutions", International Journal of Computer Mathematics, 86, pp. 864–882, 2009. SCI-B
- **R. Korn, S. Zeytun**, "Solving optimal investment problems with structured products under CVaR constraints", Optimization, 58, 3, 291-304, (2009). SCI-Exp

* Tüm araştırma faaliyetlerinde sadece UME bağlantılarını belirtmiş öğretim üyelerimizin faaliyetleri dikkate alınmıştır.

- **F. Koyuncu, F. Özbudak**, "Integral and homothetic indecomposability with applications to irreducibility of polynomials", Turkish J. Of Mathematics, vol.33, no.3, pp 283-294, 2009. SCI-Exp.
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Yurtiçi Yayın	Yurtiçi Sunum	Editörlük
1	1	5

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ÇALIŞTAY/ SEMPOZYUM/ KONFERANS/ YAZOKULU

- **Workshop on Recent Advanced in Probability and Statistics on the Memory of Prof. Jürgen Lehn,** (Ankara, 23-24 Nisan 2009)

  28 Eylül 2008'de vefat eden Darmstadt Technical Univeristy (DTÜ) Matematik Bölümü öğretim üyesi Prof. Dr. Jürgen Lehn'in anısına "Recent Developments in Applied Probability and Statistics" başlıklı uluslararası bir çalıştay düzenlenmiştir. Çalıştayın amacı Prof. Dr.Lehn'in araştırma alanı olan Uygulamalı Olasılık ve İstatistik konularında çalışan bilim insanlarını bir araya getirmek ve bu konulardaki son gelişmeleri Türkiye'de paylaşmaktır. Bu çerçevede katkıda bulunmaları için Prof. Dr. Luc Devroye, Prof. Thomas Müller Gronbach, Prof. Ralf Korn, Prof. Volker Mammitzsch , Prof. Angelika May gibi Prof. Lehn ile yakın çalışmalarda bulunmuş olan bilim adamları davet edilmiş ve Türk bilim adamlarının da yer aldığı geniş bir katılım ile çalıştay gerçekleştirilmiştir. Oldenburg Üniversitesi öğretim üyesi Prof. Dr. Angelika May tarafından çalıştay öncesinde "Mathematics in Insurance" başlıklı seminer dizisi verilmiştir.

*Bu Preprintlerin listesi **Ek 1**'de verilmektedir.

ENSTİTÜ ÖĞRETİM ÜYELERİNİN ORGANİZASYONLARINDA BULUNDUKLARI ÇALIŞTAY/ SEMPOZYUM/ KONFERANS/ YAZOKULU

- **Ö.L. Gebizlioğlu,** 13th International Congress on Insurance Mathematics and Economics, İstanbul, 26-29 Mayıs 2009.
- **Ö.L. Gebizlioğlu,** 14th International Congress on Computational and Aplied Mathematics, Antalya, 29 Eylül-2 Ekim 2009.
- **E. Akyıldız,** 14th International Congress on Computational and Aplied Mathematics, Antalya, 29 Eylül-2 Ekim 2009.
- **G.W.Weber**, Member of Programme Committee of the conference Nonlinear Analysis and Applications (nonlinear 09) in memory of Professor Valeriy Melnik, National Technical University of Ukraine, Kiev, Ukraine, April 2-4, 2009.
- **G.W.Weber**, Member of Organizing Committee of HIBIT 2009 - 4th International Symposium on Health Informatics and Bioinformatics, Ankara, April 16-17, 2009.
- **G.W.Weber**, Member of Program Committee and member of Organizing Committee of Workshop on Recent Developments in Applied Probability and Statistics, Dedicated to the Memory of Professor Jürgen Lehn, METU, Ankara, April 23-24, 2009.
- **G.W.Weber**, Member of Program Committee and member of Organizing Committee (and session chair) of Workshop ``Complex Systems - Theory and Applications in Sciences and Engineering", Ankara, May 14-15, 2009.
- **G.W.Weber**, Member of International Reviewers and Program Committee, and of Steering Committee of Second Global Conference on Power and Optimization - PCO2009, Bali, Indonesia, June 1-3, 2009.
- **G.W.Weber**, Member of International Scientific Committee of the 4th OCA, International Conference on Optimization and Control with Applications, Harbin and Wudalianchi, China, June 7-11, 2009.
- **G.W.Weber**, Member of Program Committee and member of Organizing Committee of 7th EUROPT Workshop ``Advances in Continuous Optimization", University of Applied Sciences, Remagen, Germany, July 3-4, 2009.
- **G.W.Weber**, Member of Program Committee and member of Organizing Committee of A EURO ORD Workshop on OR for Developing Countries - Young Researchers and PhD Symposium, University of Applied Sciences, Remagen, July 4, 2009.
- **G.W.Weber**, Member of Organizing Committee of State-of-the-Art Workshop - Mutual session of special researchers of several Euro working groups OR for Development, Ethics, Decision Making, Methodology of Societal Complexity and others, University of Applied Sciences, Remagen, Germany, July 5, 2009.
- **G.W.Weber**, Member of Programme Committee and member of Organizing Committee of EURO XXIII 2009, Bonn, Germany, July 5-8, 2009.
- **G.W.Weber**, Member of Program Committee, and of Program Committee of the track "Applied Operations Research and Optimization" at 2009 IEEE-RIVF International Conference on Computing and Telecommunication Technologies - IEEE-RIVF 2009, Da Nang City, Vietnam, July 13-17, 2009.
- **G.W.Weber**, Member of International Programme Committee of 9th International Conference CASYS'09 on Computing Anticipatory Systems, Liege, Belgium, August 3-8, 2009.
- **G.W.Weber**, Member of Programme Committee of 4th Summer School ``Achievements and Applications of Contemporary Informatics", Mathematics and Physics (AACIMP-09), National Technical University of Ukraine (KPI), Kiev, Ukraine, August 5-16, 2009.
- **G.W.Weber**, Member of International Steering Committee and member of International Programme Committee of EURO Mini Conference ``Knowledge-Based Technologies and OR for Strategic Decisions of Sustainable Development", Vilnius, Lithuania, September 30 - October 3, 2009.

- **G.W.Weber**, Member of Organizing Committee and member of the Programme Committee of "14th International Congress on Computational and Applied Mathematics", Antalya, September 29 - October 2, 2009.
- **B.Karasözen**, 14th International Congress on Computational and Applied Mathematics (ICCAM 2009), Antalya, 29. September – 2. October, 2009.
- **B.Karasözen**, Workshop on Recent Developments in Applied Probability and Statistics, Ankara, 23-24 April 2009.
- **B.Karasözen**, Complex Systems - Theory and Applications in Sciences and Engineering, METU, Institute of Applied Mathematics, Ankara, 23-24 May, 2009.
- **Z. Kalaylıoğlu**, Member of Organizing Committee of Workshop on Recent Developments in Applied Probability and Statistics, Dedicated to the Memory of Professor Jürgen Lehn, METU, Ankara, April 23-24, 2009.

ARAŞTIRMA GRUPLARI

AÇIK ANAHTAR ALTYAPISI (AAA) ARAŞTIRMA GRUBU

Açık Anahtar Altyapısı (AAA) konusunda bilgi birikimi elde etmek ve yeni gelişmeler sunmak amacıyla üç temel grup olarak araştırma yapılmaktadır. Yazılım geliştirme grubu; algoritma geliştirme, analiz ve kodlama çalışmaları yapmaktadır, hukuki işler ve uygulama grubu; kullanılacak olan teknolojilerin hukuka ve kanunlara uygunluğunu araştırmak ve konu ile ilgili çıkan yönetmelik ve tebliğleri takip etmek ve bunların projedeki uygulamaları ile ilgilenmektedir, altyapı ve sistem geliştirme grubu; proje içerisinde ihtiyaç duyulan altyapı ve sistem gereksinimlerini belirleyerek bu sistemlerin kurulumu ve güvenliği ile ilgilenmektedir. (www.pki.iam.metu.edu.tr)

AKAN ŞİFRE SİSTEMLERİ ÇALIŞMA GRUBU

Akan Şifre Sistemleri Çalışma Grubunun araştırma alanları akan şifre sistemlerinin test, tasarım ve analiz konularını içermektedir. Grup bu amaçla literatürde bilinen birçok akan şifre sisteminin yanısıra, ECRYPT Stream Cipher Project'e sunulan birçok algoritmanın tasarımlarını incelemekte ve analizlerini yapmaktadır. Aynı zamanda akan şifrelerin genel test yöntemleri ve tasarım kriterlerinin geliştirilmesi konularında da çalışmalar yapılmaktadır.

BOOLE FONKSİYONLARI ÇALIŞMA GRUBU

Bu grubun amacı, dengelilik, tam çığ ölçütü (strict avalanche criterion), yüksek nonlineerite, yüksek cebirsel derece, yüksek mertebede korelasyon bağışıklığı ve yüksek mertebede propagation kriteri gibi konuları çalışmaktadır. Bu fonksiyonların tasarımında bütün bu karakteristikler hesaba katılmalıdır. Örneğin bükük fonksiyonlar (Benting functions) maksimum nonlineeriteye sahiptir ve sıfırdan farklı her vektör için propagation kriteri sağlar. Fakat bu fonksiyon sınıfı dengeli ve korelasyon bağışıklı değildir. Boole fonksiyonları kriptografinin önemli bir alanı olmuştur. Shannon 1949 yılında modern kriptografinin temellerini attığında çarpım şifrelerini ifade etmek için permütasyon ve yer değiştirme olmak üzere iki temel dönüşüm kullanmıştır. Kullandığı her iki dönüşümde de Boole fonksiyonların kriptografik özellikleri sözkonusudur. Bundan sonraki süreçte kriptolojide Boole fonksiyonları S-kutuları tasarımında yaygın bir şekilde kullanılmıştır. Boole fonksiyonunun iyi olmasının ölçüsü kriptografik özellikleriyle doğru orantılıdır. (http://www.math.metu.edu.tr/bfwg)

DİNAMİK SİSTEMLER ARAŞTIRMA GRUBU

 "Uygulamalı Dinamik Sistemler" araştırma grubu güncel matematiğin en faal alanlarından biri olan Dinamik Sistemler Teorisinin biyoloji, tıp, ekonomi ve finans gibi alanların problemlerine uygulamaları üzerine yoğunlaşmıştır. UME, Elektrik-Elektronik, Biyoloji, Matematik Bölümlerinden bazı öğretim üyelerinden oluşan bu grup modellerinde, fonksiyonel ve impulsive differensiyel denklemler kullanmakta ve somut problemlerin incelenmesinde çatallanma teorisi, merkez manifold teorisi gibi soyut teorilerden yararlanmaktadır. (http://www.iam.metu.edu.tr/research)

EUROPT OPTİMİZASYON ARAŞTIRMA GRUBU

Bu araştırma grubunun amacı, uluslararası işlevsel araştırma ve uygulamalı matematik çalışmalarını özellikle avrupa birliğindeki araştırmacılarla birlikte uluslararası düzeyde canlı tutmaktır. EUROPT Optimizasyon Araştırma Gurubu olarak popüler dergilerin özel sayılarına yayınlar hazırlanmış, birçok çalıştay düzenlenmiş, her düzeyde çeşitli bilimsel aktiviteler gerçekleştirilmiştir. Bunların dışında iki yeni EURO çalışma grubu ile çalışmalar devam etmekte ve 2003 yılından itibaren Uygulamalı Matematik Enstitüsü, EUROPT ve EURO Sürekli Optimizasyon çalışma grubuna ev sahipliği yapmaktadır. (http://www.iam.metu.edu.tr/EUROPT/)

FİNANSAL RİSK ARAŞTIRMA GRUBU

Finansal Risk Araştırma Grubu Türk finans sektöründe uygulama ve teoride karşılaşılan problemleri çözmek üzere 2003 yılında enstitümüz bünyesinde kurulmuş bir araştırma grubudur. Bu araştırma gurubu üniversite ile finans kurumlarının risk birimi çalışanlarını bir araya getirerek söz konusu problemlerin anlaşılmasını ve çözüm önerileri üretilmesini sağlamak amacını gütmektedir. (http://www.iam.metu.edu.tr/research/groups/riskman.html)

HESAPLAMALI BİYOLOJİ VE TIP ARAŞTIRMA GRUBU

Bu araştırma grubunda yer alan temel konular, gen ekspresyon motiflerinin modellenmesi ve tahmini, hesaplamalı insan metabolizması, beyin araştırmaları, kalp araştırmaları, populasyon dinamiği, gen dinamiği, gen değişimleri (populasyonların sınıflandırılması), sürdürebilir gelişme, ve dünya ısısının kontrolüdür. Bu grup ODTÜ'de Biyoinformatik/Hesaplamalı Biyoloji üzerine **Bilim ve Teknolojileri YUUP Grubu** ile ortak çalışmaktadır. **YUUP araştırma grupları**'nda, biyoteknoloji, tıp ve biyoinformatik gibi araştırma konuları ile ilgili birçok temsilcisi bulunmaktadır. (http://www.iam.metu.edu.tr/research/groups/compbio/index.html)

HİBRİD SİSTEMLER ARAŞTIRMA GRUBU

"Development of Modeling and Optimization Tools for Hybrid Systems" NSF-TÜBİTAK INT ve "Modeling Multistationary Processes by Using Hybrid System Formulation: A study with priority on functional genomics" TÜBİTAK kariyer projesi çerçevesinde çalışmalar sürdürülmektedir. (http://www.iam.metu.edu.tr/research/groups/hybrg/index.html)

KODLAMA TEORİSİ ARAŞTIRMA GRUBU

Ana uygulamasının iletilerde oluşan hataların saptanması/düzeltilmesi olan hata düzeltici kodlar, özellikle otantikasyon kodlarıyla kriptografiye ve bilginin lineer olarak işlendigi başka alanlara da uygulanabilmektedirler. İyi parametrelere sahip kodların çok noktalı cebirsel eğrilerden ve varyetelerden elde edildiği bilinmektedir. Bu araştırma grubunun ilgi alanları: iyi parametrelere sahip hata düzeltici kod inşaası, sonlu cisimler üzerindeki cebirsel eğriler ve varyeteler, çok noktalı eğriler inşaası ve bu eğrilerden kodlar üretilmesi ve kodlama teorisinin kriptografiye uygulamaları sayılabilir. Ayrıca hata düzeltme kodları kullanılarak doğrulama kodlarının oluşturulması da amaçlanmaktadır.

OPTİMİZASYON TEORİSİ ARAŞTIRMA GRUBU

Bu araştırma grubu global, yarı-sonsuz değişkenli, türevsiz ve düzgün olmayan optimizasyon konularında çalışmalar yapmaktadır. (http://www.iam.metu.edu.tr/EUROPT)

TERS PROBLEMLER ARAŞTIRMA GRUBU

Grubun 2007 yılı çalışmaları, diğer grupların çalışmalarına ve projelerine destek şeklinde, ortaklaşa yürütülmüştür. (http://www.iam.metu.edu.tr/research)

YÜRÜTÜCÜLÜĞÜ YAPILAN PROJELER

Projenin Adı: Modeling Multistationary Processes by Using Hybrid System Formulation: A study with priority on functional genomics (TÜBİTAK 1001 Projesi)
Yürütücüsü: Hakan Öktem
Araştırmacıları: Nurgül Gökgöz, Mustafa Kahraman
Süresi: Haziran 2005 –Haziran 2010
Bütçesi: 162.400 TL

Projenin Adı: Sabit Faiz Oranlı Mortgage Kontratlarının Enflasyonist Ekonomilerde Fiyatlandırılması: Türkiye Örneği (TÜBİTAK 1001 Projesi)
Yürütücüsü: Işıl Erol
Araştırmacıları: Kasırga Yıldırak, Ömür Uğur
Süresi: 15 Ekim 2007 – 15 Ekim 2009
Bütçesi: 59.500 TL

Projenin Adı: Development of Modeling and Optimization Tools for Hybrid Systems, TÜBİTAK-NSF International Project (TBAG-U/114(104T253))
Yürütücüsü: Bülent Karasözen
Araştırmacıları: Hakan Öktem, Metin Turkay
Süresi: 1.5.2005- 31.4.2009
Bütçesi: 29.120 TL

Projenin Adı: DAAD Optimization: Theory, Methods and Applications Project
Yürütücüsü: Bülent Karasözen
Araştırmacıları: Gerhard Wilhelm Weber, Stefan Ulbrich
Süresi: 1.1.2008- 31.12.2011
Bütçesi: 40.000 Euro

Projenin Adı: Türkiye Morbidite Tablolarının Oluşturulması Aşama:I (TEKNOKENT Projesi)
Yöneticisi: Ersan Akyıldız
Yürütücüsü: Ömer L. Gebizlioğlu
Araştırmacıları: Sevtap Kestel, Burçak Başbuğ Erkan, Kasırga Yıldırak, Fatih Tank, Zeynep Kalaylıoğlu, Sarp Üner, Hatice Anar, Büşra Yılmaz, Derya Uygun
Süresi: 01.05.2009-30.06.2010
Bütçesi: 343.000 TL

Proje Adı: Birincil ve İkincil Morgage Piyasaları ve Morgage Kontraları Fiyatlandırılması Konusunda Danışmanlık ve Eğitim Hizmetleri"(Döner Sermaye Projesi)
Yürütücüsü: Işıl Erol
Süresi: 05.06.2009-19.12.2009
Bütçesi: 30.046 TL

Proje Adı:	Eşleme-Tabanlı Kripto Sistemleri Araştırma Geliştirme Projesi
Yürütücüsü:	Ersan Akyıldız
Süresi:	01.12.2008-30.06.2009
Bütçesi:	30.000 USD

Proje Adı:	Kompleks Faiz Türevlerinin Fiyatlandırılması için LIBOR Market Modeli Simulasyonu Prototipinin Geliştirilmesi (Development of a First Prototype of a LOBOR market Simulation for Valuation (pricing) of Complex Interest Rate Derivatives) (Döner Sermaye Projesi)
Yürütücüsü:	Ömür Uğur
Araştırmacıları:	Martin Rainer
Süresi:	01.12.2009-31.03.2010
Bütçesi	10.150 Euro

Proje Adı:	Özet Fonksiyonların Güvenlik Ölçütleri ve Analiz Metotları Geliştirme ve Uygulama Projesi (TÜBİTAK1001 Projesi)
Yürütücüsü:	A. Emrah Çakçak
Araştırmacıları:	Fatih Sulak, Begül Bilgin, Erdener Uyan,Çağdaş Çalık
Süresi:	01.03.2009-01.03.2010
Bütçesi:	44.100 TL

ODTÜ-BİLİMSEL ARAŞTIRMA PROJELERİ

Projenin Adı:	Kartezyen Hesaplama Ağı Üreticisi Geliştirilmesi (BAP-2007-07-05-03)
Yürütücüsü:	Mehmet Haluk Aksel
Araştırmacıları:	Bülent Karasözen
Süresi:	1 Ocak 2007-31 Aralık 2009
Bütçesi:	6.635 TL

Projenin Adı:	Çok Katmanlı Eniyileme Problemlerinin Türev Gerektirmeyen Yöntemlerle Çözümü (BAP-07.05.2009.01)
Yürütücüsü:	Bülent Karasözen
Araştırmacıları:	Y. Uludağ, Bengisen Pekmen, Hamdullah Yücel
Süresi:	1 Ocak 2009-31 Aralık 2009
Bütçesi:	4.000 TL

Projenin Adı:	Bayesian Unit Root Test in Stochastic Volatility Models with Correlated Errors and Autoregressive Model of Order p (BAP-07.05.2009.03)
Yürütücüsü:	Zeynep Işıl Kalaylıoğlu
Araştırmacıları:	Kasırga Yıldırak, Burak Bozdemir
Süresi:	1 Ocak 2009-31 Aralık 2009
Bütçesi:	6.500 TL

Projenin Adı:	Finite Geometry, Coding Theory and Cryptography (BAP-07.05.2009.03)
Yürütücüsü:	Ferruh Özbudak
Araştırmacıları:	Emrah Çakçak,Adnen Sboui,Burcu Gülmez,Murat Cenk,Kerem Kaşkaloğlu
Süresi:	1 Ocak 2009-31 Aralık 2009
Bütçesi:	10.000 TL

Projenin Adı:	A Classification Problem of Credit Risk Rating Investigated and Solved by New Methods of Statistical Learning and Optimization (BAP-07.05.2009.04)
Yürütücüsü:	Gerhard Wilhelm Weber
Araştırmacıları:	B. Burçak Başbuğ Erkan, Işıl Erol, AzizeHayfavi, Kasırga Yıldırak, Efsun Kürüm, Vefa Gafarova
Süresi:	1 Ocak 2009-31 Aralık 2009
Bütçesi:	4.000 TL

Projenin Adı:	Parameter Estimation for Actuarial Sciences and Financial Mathematics in Stochastic Differential Equations by Additive and Nonlinear Models and Continuous Optimization (BAP-07.05.2009.05)
Yürütücüsü:	Gerhard Wilhelm Weber
Araştırmacıları:	B. Burçak Başbuğ Erkan, Işıl Erol, Kasırga Yıldırak, Pakize Taylan, M.Burak Bozdemir, Efsun Kürüm, Vefa Gafarova
Süresi:	1 Ocak 2009-31 Aralık 2009
Bütçesi:	5.000 TL

Projenin Adı:	Stochastic Models forPricing and Hedging Derivatives in Incomplete Makets: Structure, Calibration, Dynamical Programming, Risk Optimization (BAP-07.05.2009.06)
Yürütücüsü:	Martin Rainer
Süresi:	1 Ocak 2009-31 Aralık 2009
Bütçesi	2.000 TL

ODTÜ-BİLİMSEL ARAŞTIRMA TEZ PROJELERİ

Projenin Adı:	İstatistik ve Veri Madenciliğinde Karşılaşılan Genelleştirilmiş Modellerin Eniyileme ve Ters Problemler Yöntemleriyle Çözümü (BAP-07.05.2009.00.01)
Yürütücüsü:	Gerhard Wilhelm Weber
Araştırmacıları:	B. Karasözen,Gül Çelik,Belgin Kayhan
Süresi:	1 Ocak 2009-31 Aralık 2009
Bütçesi:	3.000 TL

Projenin Adı:	Sinir Ağlarının Kompleks Dinamiği (BAP-08-07-05-00-03)
Yürütücüsü:	Marat Akhmet
Araştırmacıları:	Enes Yılmaz
Süresi:	1 Ocak 2008-31 Aralık 2011
Bütçesi :	1.500 TL

ENSTİTÜ BAĞLANTILI ÖĞRETİM ÜYELERİNİN ARAŞTIRMACI OLARAK KATILDIKLARI PROJELER

Projenin Adı:	Kalite İyileştirmede Veri Madenciliği Kullanımı ve Geliştirilmesi (TÜBİTAK 105M138)
Yürütücüsü:	G. Köksal (Endüstri Mühendisliği)
Araştırmacıları:	Nur Evin Özdemirel, Sinan Kayalıgil, Gerhard Wilhelm Weber, Bülent Karasözen, İnci Batmaz, Murat Caner Testik, Berna Bakır, Başak Öztürk, İlker Arif İpekçi, Fatma Güntürkün, Fatma Yerlikaya, Elçin Kartal, Dilber Ayhan, Barış Yenidünya, Zeynep Anaklı, Gizem Özer, Tuna Kılıç, Özlem Türker
Süresi:	1 Mayıs 2006-30 Haziran 2009
Bütçesi:	185.230 TL

Projenin Adı:	Balaban Valley Project Sürekli Optimizasyon Yöntemleri ve Uygulamaları
Yürütücüsü:	A. Gökmen
Araştırmacıları:	S. Kayalıgil, G. W. Weber, İ. Gökmen, M. Ecevit, A. Sürmeli, T. Bali, Y. Ecevit, H. Gökmen, D. J. DeTombe
Süresi:	2004-...

Projenin Adı: Ankara'daki Genç Sağlık Ara Elemanlarının İstihdamı-SAĞLIKEL
Sözleşme Numarası : CFCU/TR0602.03-02/647
Koordinatör: Aytekin Cıbık, Gazi Üniversitesi
Koordinatör Yardımcısı: Enes Yılmaz
Süresi: 1 Aralık 2008-30 Kasım 2009
Bütçesi: 231.291.20 €

ÖĞRETİM ÜYESİ YETİŞTİRME PROGRAMI (ÖYP) PROJELERİ

Danışmanı: Ömür Uğur
Öğrencinin Adı: Ayşegül İşcanoğlu
Üniversitesi: Selçuk Üniversitesi, KONYA
Bütçesi: 1.2210 TL

Danışmanı: Ömür Uğur
Öğrencinin Adı: Derya Altıntan
Üniversitesi: Selçuk Üniversitesi, KONYA
Bütçesi: 2.463 TL

Danışmanı: Gerhard W. Weber
Öğrencinin Adı: Nüket Erbil
Üniversitesi: Fırat Üniversitesi, ELAZIĞ
Bütçesi: 1.665 TL

Danışmanı: Ersan Akyıldız
Öğrencinin Adı: Barış Bülent Kırlar
Üniversitesi: Süleyman Demirel Üniversitesi, ISPARTA
Bütçesi: 2.282 TL

Danışmanı: G. Wilhelm Weber
Öğrencinin Adı: S. Zeynep Alparslan
Üniversitesi: Süleyman Demirel Üniversitesi, ISPARTA
Bütçesi: 755 TL

Danışmanı: Melek D. Yücel
Öğrencinin Adı: Sedat Akleylek
Üniversitesi: Ondokuz Mayıs Üniversitesi, SAMSUN
Bütçesi: 1.789 TL

Danışmanı: Ersan Akyıldız
Öğrencinin Adı: Turgut Hanoymak
Üniversitesi: Yüzüncü Yıl Üniversitesi, VAN
Bütçesi: 1.868 TL

Danışmanı: Melek D. Yücel
Öğrencinin Adı: Rita İsmailova
Üniversitesi: Kırgız Türkiye Manas Üniversitesi, KIRGIZİSTAN
Bütçesi: 1.673 TL

Danışmanı: Prof. Dr. Bülent Karasözen
Öğrencinin Adı: Ayşe Sarıaydın
Üniversitesi: Yüzüncü Yıl Üniversitesi, VAN
Bütçesi: 1.886 TL

DİĞER FAALİYETLER

ENSTİTÜ TARAFINDAN DÜZENLENEN KISA SÜRELİ KURSLAR/ SEMİNERLER

- **Dr. Stefan Giebel**, (Technische Universität Braunschweig), "Application of Neural Networks for Characteristic Shapes in Medicine, Target Groups: Mathematics, Engineering, Medicine", "Comparison of Neural Networks and Configuration Frequency Analysis for Pattern Analysis in Criminology", "Forcasting of Stochastic Market Prices via Neural Networks" December 17- 23, 2009.
- **Dr. Zuzana Oplatková,** (Tomas Bata University in Zlin, Faculty of Applied Informatics Zlín, Czech Republic) "Symbolic regression: principles and applications", "Evolutionary algorithms: principles and applications", "Neural networks: principles and applications" November 9-13, 2009.
- **Dr. Vadim Strijov,** (Computer Center of Russian Academy of Sciences, Moscow)**,** "Analysis of regression model parameters", "Methods of model selection and dimensionality reduction", "Model Generation and its Application in Financial Sector" October 5-9, 2009.
- **Doç. Dr. M. Rodica Branzei (**Alexandru Ioan Cuza University, Romania), **Prof. Dr. Stef Tijs, (**Tilburg University, Netherlands) Monotonicity properties of interval solutions for convex interval games", "Peer Group Situations and Games" "Approximate Solutions for Multi-Criteria Situations via Improvement Sets" January 23- February 4, 2009

ENSTİTÜMÜZÜ KISA SÜRELİ ZİYARET EDENLER

- **Doç. Dr. M. Rodica Branzei (**Alexandru Ioan Cuza University, Romania), 23 Ocak- 4 Şubat 2009.
- **Prof. Dr. Stef Tijs (**Tilburg University, Netherlands), 23 Ocak- 4 Şubat, 2009.
- **Prof. Dr. John Shawe-Taylor (**University College London (UCL),UK) 6 Şubat 2009.
- **Prof. Dr. Sencer Yeralan,** (University of Florida, Gainsville, USA) 24 Şubat, 2009.
- **Prof. Dr. Vasiliy Belozyorov (**Dnepropetrovsk State University, Ukraine), 06-20 Mart 2009.
- **Dr. Ceren Vardar (**Department of Mathematics and Statistics, Bowling Gren State University), 27 Mart 2009.
- **Suna Özyüksel Oksay (**Türk Sigorta Enstitüsü Vakfı Başkanı), 10 Nisan 2009.
- **Doç. Dr. Sevtap Kestel (**Albert Ludwigs University Freiburg, Faculty of Economics), 14 Nisan 2009.
- **Prof. Dr. Angelika May (**Carl von Ossietzky Univ. of Oldenburg, Germany), 22 Nisan 2009.
- **Orhan Coşkun (**REUTERS), 8 Mayıs 2009.
- **Prof. Dr. Kristina Schmücker (**Max Planck Society, Munich, Germany), 15 Mayıs 2009.
- **Prof. Dr. Sujit K. Ghosh** NC State University (Amerika), 18-28 Mayıs 2009
- **Dr. Patrick Sole (**CNRS-I3S, ESSI), 05 Ekim 2009.
- **Dr. Winnie Li (**Dept. of Mathematics, The Pennsylvania State University), 05 Ekim 2009.
- **Dr. Vadim Strijov (**Computer Center of Russian Academy of Sci., Moscow)**,** 5-9 Ekim 2009.
- **Dr. Zuzana Oplatková (**Tomas Bata University in Zlin, Faculty of Applied Informatics Zlín, Czech Republic), 9-13 Ekim 2009.
- **Turan Paksoy, Eren Özceylan, Nimet Pehlivan (**Selçuk University, Department of Industrial Engineering), 20 Kasım 2009.
- **Dr. Stefan Giebel (**Technische Universität Braunschweig), 17- 23 Aralık 2009.
- **Ayşegül Birand (**University of Tennessee, Department of Ecology & Evolutionary Biology), 24 Aralık 2009.

ENSTİTÜ ÜYELERİNİN KISA SÜRELİ YURT DIŞI ZİYARETLERİ

- **Sedat Akleylek**, İsviçre ve Belçika teknik gezi, 5-16 Eylül 2009.
- **Çağdaş Çalık**, İsviçre ve Belçika teknik gezi, 5-16 Eylül 2009.
- **Turgut Hanoymak**, Summer School on Provable Security, Barselona, İspanya, 7-11 Eylül 2009.
- **Ayşe Sarıaydın,** Max-Planck Enstitüsü, Almanya, 14 Eylül-11 Aralık 2009.
- **Ersan Akyıldız,** Kaiserlautern ve Berlin Üniversiteleri, Matematik Bölümleri, Almanya, 20–27 Temmuz 2009.
- **Serkan Zeytun**, Kaiserslautern Üniversitesi Almanya, 21 Temmuz-20 Ağustos 2009.
- **Ersan Akyıldız,** EMRCM/CREMMA, Tunus, 26 Haziran 2009.
- **G.-W. Weber**, Participation at CREMMA Meeting, Visit at El Manar University, Tunis, Tunia, June 26, 2009.
- **Derya Altıntan,** Karlsruhe Üniversitesi, Almanya, 20 Nisan 2009-20 Mart 2010.
- **Derya Altıntan**, Karlsruhe Üniversitesi, Almanya, 7-22 Mart 2009.
- **Derya Altıntan,** "Enumath 2009", İsveç, 3 Haziran-29 Temmuz 2009.
- **Ayşegül İşcanoğlu Çekiç,** 2. International Conferenc on Social Sciences, İzmir, 10-11 Eylül 2009.
- **Ayşegül İşcanoğlu Çekiç,** 23rd European Conference on Operational Research (EURO XII), Almanya, 5-8 Temmuz 2009.

ENSTİTÜ DESTEKLİ KONFERANS KATILIMLARI

- **Hamdullah Yücel**, "Hiearchial Matrices", Leipzig Max-Planck Enstitüsü Almanya, 2-6 Mart 2009.
- **Enes Yılmaz**, "Innovative Approaches to University & Small and Medium Enterprises (SMEs)" Siauliai Universitesi (Litvanya) 19-20 Mart 2009.
- **Adnen Sboui**, "AGCT-12 Arithmetic, Geometry, Cryptography and Coding Theory", Fransa, 25 Mart-3 Nisan 2009.
- **Ferruh Özbudak**, "AGCT-12 Arithmetic, Geometry, Cryptography and Coding Theory", Fransa, 30 Mart-3 Nisan 2009.
- **Azize Hayfavi**, "5th Conference of the Eastern Mediterranean Region of the International Biometric Society" (IBS-EMR), İstanbul, 10-14 Mayıs 2009.
- **Zeynep Kalaylıoğlu,** "5th Conference of the Eastern Mediterranean Region of the International Biometric Society" (IBS-EMR), İstanbul 10-14 Mayıs 2009.
- **Emrah Çakçak,** "Antalya Cebir Günleri Konferansı", Antalya 20-24 Mayıs 2009.
- **Adnen Sboui,** "Galois Geometries and Applications 2009", Belçika, 25-29 Mayıs 2009.
- **B.Burçak Başbuğ Erkan,** "13th International Congress on Insurance: Mathematics and Economics" (IME2009) İstanbul, 26-28 Mayıs 2009.
- **Gerhard W. Weber,** "Second Global Conference on Power and Optimization-PCO2009" Endonezya, 1-3 Haziran 2009.
- **Derya Altıntan,** "Enumath 2009", İsveç, 3 Haziran-29 Temmuz 2009.
- **Cihangir Tezcan,** "Gizli Anahtarlı Sistemlerin Kriptanalizi", UEKAE-TÜBİTAK Gebze, 15-20 Haziran 2009.
- **Enes Yılmaz,** "Resonance Oscillations and Stability of Nonsmooth Systems", İngiltere, 16-25 Haziran 2009.
- **Emrah Çakçak,** Universite Toulon-Var, Groupe de Recherche en Informatique et Mathematiques (GRIM), Fransa, 22 Haziran-20 Temmuz 2009.
- **Gerhard W. Weber**, Tunus, 25-26 Haziran 2009.
- **Gerhard W. Weber**, Almanya, 3-8 Temmuz 2009.
- **Martin Rainer,** "23rd European Conference on Operational Research" (EURO XII), Almanya 5-8 Temmuz 2009.
- **Kasırga Yıldırak,** "23rd European Conference on Operational Research" (EURO XII), Almanya, 5-8 Temmuz 2009.

- **Ayşegül İşcanoğlu Çekiç,** "23rd European Conference on Operational Research" (EURO XII), Almanya 5-8 Temmuz 2009.
- **Bülent Karasözen,** "CECAM Workshop", İsviçre, 27-29 Temmuz 2009.
- **Sedat Akleylek,** "Workshop on Fault Diagnosis and Tolerance in Cryptography 2009", "Workshop on Cryptographic Hardware and Embedded Systems 2009", "Special-purpose Hardware for Attacking Cryptographic Systems" İsviçre, 6-10 Eylül 2009.
- **Çağdaş Çalık,** "Workshop on Fault Diagnosis and Tolerance in Cryptography 2009", "Workshop on Cryptographic Hardware and Embedded Systems 2009", "Special-purpose Hardware for Attacking Cryptographic Systems" İsviçre, 6-10 Eylül 2009.
- **Sedat Akleylek,** "ECRYPT II Workshop on Cryptology: Progress and Challenges" Belçika, 14 Eylül 2009.
- **Çağdaş Çalık,** "ECRYPT II Workshop on Cryptology: Progress and Challenges" Belçika, 14 Eylül 2009.
- **Sedat Akleylek,** "Workshop on Sequences, Codes and Curves", Antalya, 25-29 Eylül 2009.
- **Oğuz Yayla,** "Workshop on Sequences, Codes and Curves", Antalya, 25-29 Eylül 2009.
- **Hakan Özadam,** "Workshop on Sequences, Codes and Curves", Antalya, 25-29 Eylül 2009.
- **Bülent Karasözen,** "Comsol Conference 2009" Milano İtalya, 14-16 Ekim 2009.
- **Martin Rainer,** "International Conference on Astronomy, Physics and Mathematics", Azerbaycan, 15-18 Ekim 2009.
- **Marat Akhmet,** "Recent Advances in Mathematical Sciences and Applications", Hindistan, 19-22 Aralık 2009.

EKLER

EK: 1
IAM PREPRINT SERİSİ

IAM PREPRINT SERIES

No	Title Abstract	Author	Date
129	On Numerical Optimization Theory of Infinite Kernel Learning	S. Özöğür-Akyüz, G. -W. Weber	21.01.2009
130	The Interval Shapley Value: An Axiomatization	S. Z. Alparslan Gök, R. Branzei, S. Tijs	03.02.2009
131	Hopfield-type neural networks systems with piecewise constant argument	M. Akhmet, E. Yılmaz	19.02.2009
132	A Review on Data Mining and Continuous Optimization Applications in Computational Biology and Medicine	G. –W. Weber, S. Özöğür-Akyüz, E. Kropat	12.03.2009
133	An explicit formula for the number of points of the elliptic curve y^2=x^3-k over the finite field F_p	B. B. Kırlar	16.03.2009
134	Non-linear Longitudinal Compression of Short Laser Pulses in the Atmosphere	B. Yedierler	18.03.2009
135	Stability analysis of recurrent neural networks with deviated argument of mixed type	M. Akhmet, D. Aruğaslan, E. Yılmaz	24.03.2009
136	Levenberg-Marquardt Parameter Estimation of Stochastic Logistic Model	H. A.Rahman, A. Bahar, M.K. Bazli, N. Rosli, M. Salleh, G.–W. Weber	06.04.2009
137	A remark on the generalized Konstant-Macdonald identity and a smoothness condition for Schubert varieties in G/B	E. Akyıldız, J.B. Carrell	09.04.2009
138	Regulatory Networks under Ellipsoidal Uncertainty-Optimization Theory and Dynamical Systems	E. Kropat, G.–W. Weber, P. C. Sekhar	04.05.2009
139	On the Convexity of Interval Dominance Cores	R. Branzei, S. Z. Alparslan Gök	31.05.2009
140	Generate the subset of discrete trajectories with best profits in polynomial time	S. V. Shchepalov	17.06.2009
141	A System Dynamics Model for Intentional Transmission of HIV/AIDS using Cross Impact Analysis	P. C. Sekhar, L. Ozdamar, E. Kropat, G. –W. Weber	05.08.2009
142	A Classification Problem of Credit Risk Rating Investigated and Solved by Optimization of the ROC Curve	E. Kürüm, K. Yildirak, G.–W. Weber	15.08.2009
143	A Minimal Spanning Trees Approach to Cluster Stability Problem	Z. Volkovich, Z. Barzily, G.–W. Weber, D. Toledano-Kitay, R. Avros	28.08.2009
144	CMARS: A New Contribution to Nonparametric Regression with Multivariate Adaptive Regression Splines Supported by Continuous Optimisation	G.–W. Weber, İ. Batmaz, G. Köksal, P. Taylan, F. Yerlikaya-Özkurt	10.09.2009
145	On an Adjacency Cluster Merit	Z. Volkovich, G. –W. Weber, R. Avros	19.09.2009
146	A System Dynamics Model to Study the Importance of Infrastructure Facilities on Quality of Primary Education System in Developing Countries	P. C. Sekhar, L. Ozdamar, G. –W. Weber, E. Kropat	24.09.2009
147	Model Selection of Infinite Kernel Learning via Observed Margin	S. Özöğür-Akyüz, G. Üstünkar, G. –W. Weber	27.09.2009
148	Cooperative games under ellipsoidal uncertainty	S. Z. Alparslan Gök, G. –W. Weber	27.09.2009
149	Nonlinear Regression Model Generation Using Hyperparameters Optimization	V. Strijov, G. –W. Weber	02.10.2009
150	A Multi-Objective Mixed Integer Programming Model For Multi Echelon Supply Chain Network Design and Optimization	T. Paksoy, E. Özceylan, G. –W. Weber	14.10.2009
151	Fuzzy Optimization of A Multi Stage Multi Item Closed-Loop Flexible Supply Chain Network Under Fuzzy Material Requirement Constraints	T. Paksoy, N. Y. Pehlivan, E. Özceylan, G. –W. Weber	14.10.2009
152	Modeling Facility Location and Supplier Selection with Supplier's Product Quality and Contract Fee for a Strategic Supply Chain Design	T. Paksoy, E. Özceylan, G. –W. Weber	21.10.2009

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153	New Discretization and Optimization Techniques with Results in the Dynamics of Gene-Environment Networks	O. Defterli, A. Fügenschuh, G. –W. Weber	03.11.2009
154	Optimization of Desirability Functions as a DNLP Model by GAMS/BARON	B. A. Ozturk, G. Koksal, G. –W. Weber	03.11.2009
155	A Multi Objective Model for Optimization of a Green Supply Chain Network	T. Paksoy, E. Özceylan, G. –W. Weber	10.11.2009
156	Evaluating the CMARS Performance for Modeling Nonlinearities	İ. Batmaz, F. Yerlikaya-Özkurt, E. Kartal-Koç, G. Köksal, G. –W. Weber	17.11.2009
157	Regression Analysis for Clusters in Gene-Environment Networks based on Ellipsoidal Calculus and Optimization	E. Kropat, G. –W. Weber, J. -J. Rückmann	19.11.2009
158	A Review on the State of the Energy Sector of Turkey from the Perspective of Operational Research - An Invitation by OR	E. Özceylan, T. Paksoy, E. Rosario, E. Kropat, G. –W. Weber	11.12.2009
159	CMARS and GAM & CQP- Modern Optimization Methods Applied to International Credit Default Prediction	Ö. Sezgin-Alp, E. Büyükbebeci, A. İşcanoğlu-Çekiç, F. Yerlikaya-Özkurt, P. Taylan, G. –W. Weber	25.12.2009

EK: 2
UME SEMİNERLERİ

Genel Seminerler

Some Results on Permutation Polynomials	**Ayça Çeşmelioğlu** (Sabancı Üniversitesi)	29.12.2009
Forcasting of Stochastic Market Prices via Neural Networks	**Stefan Giebel** (Technische Universität Braunschweig [1])	22.12.2009
Optimal Stopping for Perpetual American Warrant in Discrete Time	**Mustafa Ç. Pınar** (Industrial Engineering Bilkent University)	08.12.2009
Sigorta ve aktüerin sigorta sektöründeki rolü	**Serap Oguz Gonulal** (Senior Insurance Specialist)	02.12.2009
Applications of Clifford (Geometric) Algebras to Kinematics	**Gokhan Kiper** (METU, Department of Mechanical Engineering)	24.11.2009
SDE Solutions in the Space of Smooth Random Variables	**Yeliz Yolcu Okur** (UME)	17.11.2009
Evolutionary algorithms: principles and applications	**Zuzana Oplatková** (Tomas Bata University in Zlin, Faculty of Applied Informatics Zlín, Czech Republic)	10.11.2009
Methods of model selection and dimensionality reduction	**Vadim Strijov** (Computer Center of Russian Academy of Sciences, Moscow)	07.10.2009
Reserve estimation of Non-Life Insurance Claims in Turkey	**Sevtap Kestel** (Albert Ludwigs University Freiburg, Faculty of Economics)	14.04.2009
Sustainability	**Canan Özgen** (Department of Chemical Engineering, METU)	31.03.2009
Two-dimensional radiative gas-dynamic model for a continuous optical discharge in a gas flow	**Ismail Rafatov** (Department of Physics, METU)	24.03.2009
On self-affine and stable processes and applications	**Martin Rainer** (UME)	17.03.2009
3D Object Recognition Using Transform and Scale Invariant 3D Features	**İlkay Ulusoy** (EE Eng. Department, METU)	03.03.2009
A Generalized Activity Network Model for Sustainable Systems Engineering	**Sencer Yeralan** (METU University of Florida, Gainsville, USA)	24.02.2009
Monotonicity properties of interval solutions for convex interval games	**Rodica Branzei** (Alexandru Ioan Cuza University, Iaşi-Romania)	03.02.2009
Aggregate Monotonic Core Selections For Cooperative Games	**Stef Tijs** (Tilburg University, The Netherlands)	27.01.2009

Yaşam ve İnsan Bilimleri ve Ekonomi Alanında Uygulamalı Matematik Seminerleri

On the origin of species through mathematical models and computer simulations	**Ayşegül Birand** (University of Tennessee, Department of Ecology & Evolutionary Biology)	24.12.2009
Application of Neural Networks for Characteristic Shapes in Medicine Target Groups: Mathematics, Engineering, Medicine	**Stefan Giebel** (Technische Universität Braunschweig)	18.12.2009
Comparison of Neural Networks and Configuration Frequency Analysis for Pattern Analysis in Criminology	**Stefan Giebel** (Technische Universität Braunschweig)	17.12.2009
Supply chain network design and optimization	**Turan PAKSOY, Eren ÖZCEYLAN** (Selçuk University, Department of Industrial	20.11.2009

	Engineering)	
Symbolic regression: principles and applications	**Zuzana Oplatková** (Tomas Bata University in Zlin, Faculty of Applied Informatics Zlín, Czech Republic)	13.11.2009
Robustification of Newly Developed CMARS Method The New Robust CMARS (RCMARS) Method	**Gerhard-W. Weber, Fatma Yelikaya-Özkurt, Ayse Özmen, Inci Batmaz**	30.10.2009
On Robust Portfolio Optimization	**Gerhard-Wilhelm Weber** (UME)	23.10.2009
Analysis of regression model parameters	**Vadim Strijov** (Computer Center of Russian Academy of Sciences, Moscow)	09.10.2009
Cluster stabılıty estımatıon based on a mınımal spannıng trees approach	**Gerhard-Wilhelm Weber** (UME)	29.05.2009
Some New Contributions of Continuous Optimization Theory in the Financial Sector and Related Areas	**Gerhard-Wilhelm Weber** (UME)	19.05.2009
Discrete Tomography I	**Gerhard-Wilhelm Weber** (UME)	10.04.2009
A study on the correlation of the supremum and the infimum of standard Brownian motion and Brownian motion with drift and on the correlation of the maximum gain and maximum loss of Brownian motion with drift	**Ceren Vardar** (Department of Mathematics and Statistics, Bowling Gren State University)	27.03.2009
On the Occasion of the 150th Anniversary of the Publication of Origin of Species by Darwin - Evolution as Natural Philosophy On conditional stability of quadratic systems of differential equations	**Güngör Gündüz** (Chemical Engineering, METU) **Vasiliy Belozyorov** (Dnepropetrovsk State University, Ukraine)	20.03.2009
On Portfolio Optimization: Some Supplementary Documentations A method of design of a linear output feedback and its application to OGY (Ott-Grebogi-Yorke) control problem	**Gerhard-Wilhelm Weber** (UME) **Vasiliy Belozyorov** (Dnepropetrovsk State University, Ukraine)	06.03.2009
New Applications of PAC-Bayes Analysis	**John Shawe-Taylor** (University College London (UCL),UK)	06.02.2009
Speaker 1:Peer Group Situations and Games Speaker 2: Approximate Solutions for Multi-Criteria Situations via Improvement Sets	**Rodica Branzei and Stef Tijs** (Alexandru Ioan Cuza University, Iaşi-Romania and Tilburg University, The Netherlands)	30.01.2009
Incomplete Markets: Challenge for Valuation and Hedging	**Martin Rainer** (UME)	16.01.2009
Visit of Some Young Americans	**Gerhard Wilhelm Weber** (METU)	02.01.2009

Dinamik Sistemler Grup Seminerleri

On Some Mathematical Foundations of Nonlinear Optimization	**Gerhard-Wilhelm Weber** (UME)	12.06.2009
Homoclinic orbits of 3D quadratic systems	**Vasiliy Belozyorov** (Dnepropetrovsk State University, Ukraine.)	22.05.2009
New definitions for impulsive differential equations	**Marat Akhmet** (METU, Dept. of Math.)	08.05.2009
Approximation of Bounds on Mixed Level Orthogonal Arrays	**Devin Sezer** (UME)	24.04.2009
Stabilization of bilinear control systems by stability cones	**Vasiliy Belozyorov** (Dnepropetrovsk State University, Ukraine.)	10.04.2009

On the OGY Method for Control of Chaos	**Mehmet Onur Fen** (METU, Dept. of Math.)	03.04.2009
On conditional stability of quadratic systems of differential equations	**Vasiliy Belozyorov** (Dnepropetrovsk State University, Ukraine.)	20.03.2009
A method of design of a linear output feedback and its application to OGY (Ott-Grebogi-Yorke) control problem.	**Vasiliy Belozyorov** (Dnepropetrovsk State University, Ukraine.)	06.03.2009

Özel Seminerler

Neural networks: principles and applications	**Zuzana Oplatková** (Tomas Bata University in Zlin, Faculty of Applied Informatics Zlín, Czech Republic)	09.11.2009
Codes, Invariants and Modular Forms	**Patrick Sole** (CNRS-I3S, ESSI)	05.10.2009
Modular Curves and Coding Theory	**Winnie Li** (Department of Mathematics, The Pennsylvania State University)	05.10.2009
Model Generation and its Application in Financial Sector	**Vadim Strijov** (Computer Center of Russian Academy of Sciences, Moscow)	05.10.2009
The Max Planck Society – promoting excellence in science	**Kristina Schmücker** (Max Planck Society, Munich, Germany)	15.05.2009
Avrasya'da Enerji Mücadelesi ve Türkiye'nin Rol Alma Çabaları	**Orhan COŞKUN** (REUTERS)	08.05.2009
Asset Liability Models for Life Insurances	**Angelika May** (Carl von Ossietzky University of Oldenburg, Germany)	22.04.2009
Mortgage Sigortası ve Türkiye Uygulaması: Borç Ödeme Sigortası Genel Şartları	**Suna Özyüksel Oksay** (Türk Sigorta Enstitüsü Vakfı Başkanı)	10.04.2009

Seminer Serisi

Application of Neural Networks for Characteristic Shapes in Medicine Target Groups: Mathematics, Engineering, Medicine	**Stefan Giebel** (Technische Universität Braunschweig)	18.12.2009
Comparison of Neural Networks and Configuration Frequency Analysis for Pattern Analysis in Criminology	**Stefan Giebel** (Technische Universität Braunschweig)	17.12.2009
Forcasting of Stochastic Market Prices via Neural Networks	**Stefan Giebel** (Technische Universität Braunschweig [1])	22.12.2009
Symbolic regression: principles and applications	**Zuzana Oplatková** (Tomas Bata University in Zlin, Faculty of Applied Informatics Zlín, Czech Republic)	13.11.2009
Evolutionary algorithms: principles and applications	**Zuzana Oplatková** (Tomas Bata University in Zlin, Faculty of Applied Informatics Zlín, Czech Republic)	10.11.2009
Neural networks: principles and applications	**Zuzana Oplatková** (Tomas Bata University in Zlin, Faculty of Applied Informatics Zlín, Czech Republic)	09.11.2009
Analysis of regression model parameters	**Vadim Strijov** (Computer Center of Russian Academy of Sciences, Moscow)	09.10.2009
Methods of model selection and dimensionality reduction	**Vadim Strijov** (Computer Center of Russian Academy of Sciences, Moscow)	07.10.2009
Model Generation and its Application in Financial Sector	**Vadim Strijov** (Computer Center of Russian Academy of Sciences, Moscow)	05.10.2009
Monotonicity properties of interval solutions for convex interval games	**Rodica Branzei** (Alexandru Ioan Cuza University, Iași-Romania)	03.02.2009
Speaker 1:Peer Group Situations and Games Speaker 2: Approximate Solutions for Multi-Criteria Situations via Improvement Sets	**Rodica Branzei and Stef Tijs** (Alexandru Ioan Cuza University, Iași-Romania and Tilburg University, The Netherlands)	30.01.2009

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EĞİTİM VE ÖĞRENCİ İSTATİSTİKLERİ

* Veriler http://oidb.metu.edu.tr adresinden temin edilmiştir.

BAŞVURULAR

	2009-2010		
	BAŞVURU	**KABUL**	**KAYIT**
Aktüerya Bilimleri	16	16	11
Bilimsel Hesaplama	13	9	6
Finansal Matematik	60	41	20
Kriptografi	35	27	22
Toplam	**124**	**93**	**59**

UME ÖĞRENCİLERİNİN ALES VE CGPA ORTALAMALARI

2009-2010 KABUL EDİLEN ÖĞRENCİLER
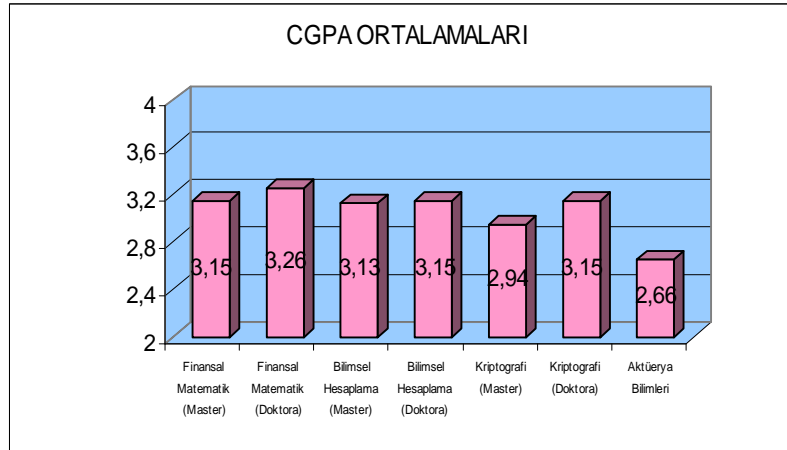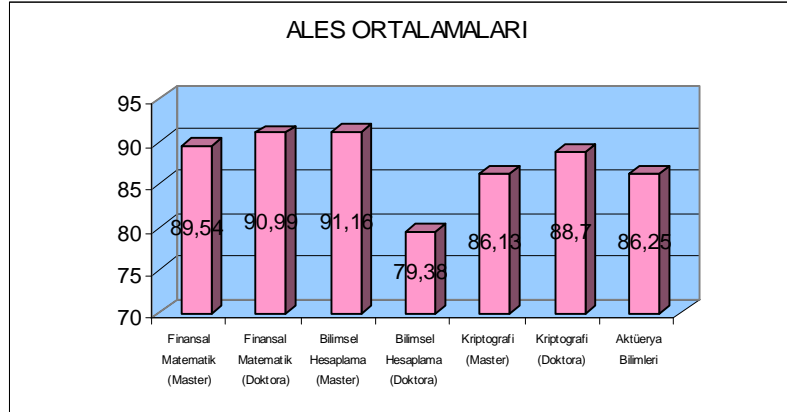
ALES ORTALAMALARI

Finansal Matematik (Master): 89,54
Finansal Matematik (Doktora): 90,99
Bilimsel Hesaplama (Master): 91,16
Bilimsel Hesaplama (Doktora): 79,38
Kriptografi (Master): 86,13
Kriptografi (Doktora): 88,7
Aktüerya Bilimleri: 86,25

CGPA ORTALAMALARI

Finansal Matematik (Master): 3,15
Finansal Matematik (Doktora): 3,26
Bilimsel Hesaplama (Master): 3,13
Bilimsel Hesaplama (Doktora): 3,15
Kriptografi (Master): 2,94
Kriptografi (Doktora): 3,15
Aktüerya Bilimleri: 2,66

UME'YE KABUL EDİLEN ÖĞRENCİLERİN MEZUN OLDUKLARI ÜNİVERSİTELERE GÖRE DAĞILIMI

UME'YE KABUL EDİLEN ÖĞRENCİLERİN LİSANS DERECESİNİ ALDIKLARI ÜNİVERSİTELER

2009-2010

BİLİMSEL HESAPLAMA

FİNANSAL MATEMATİK

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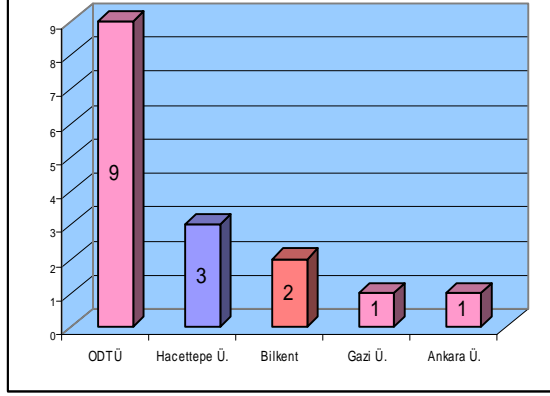
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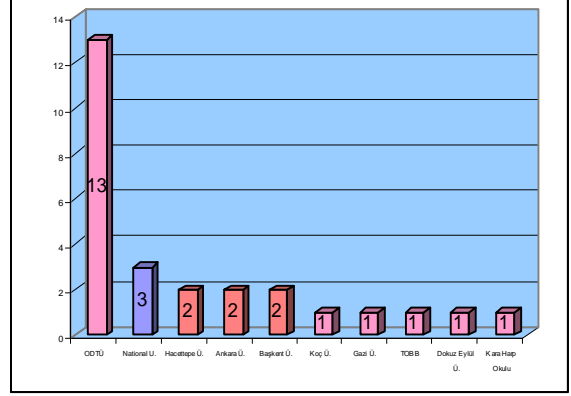
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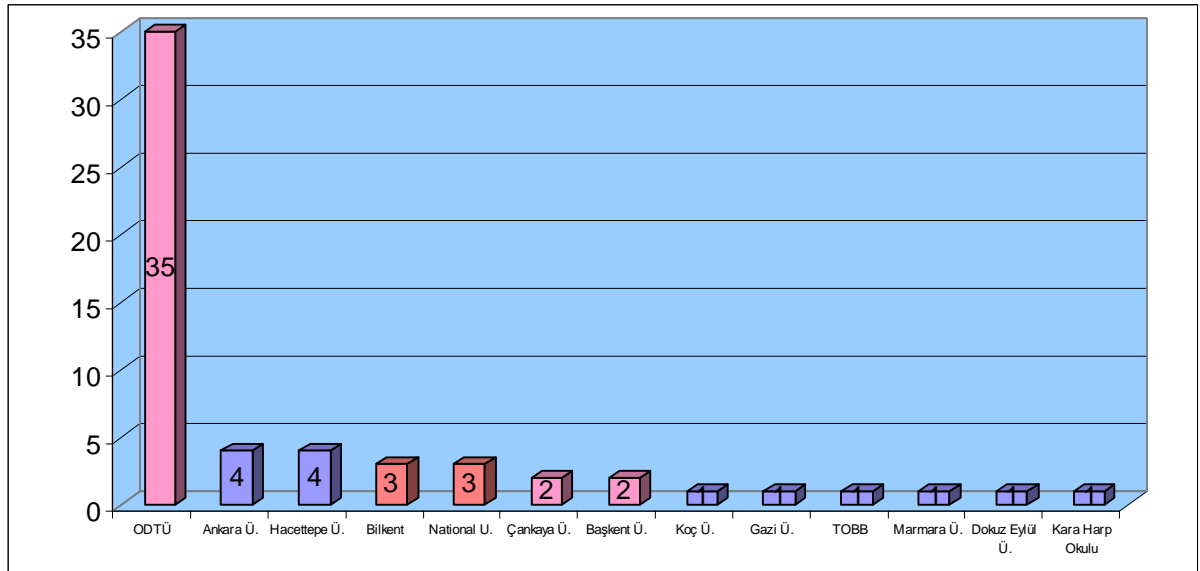
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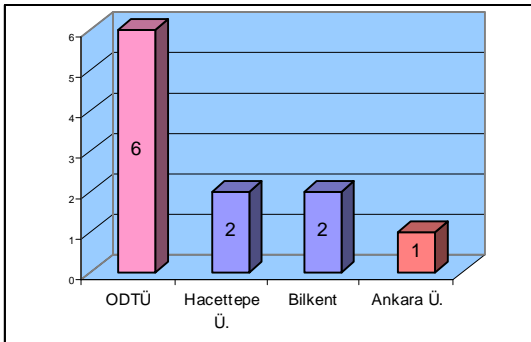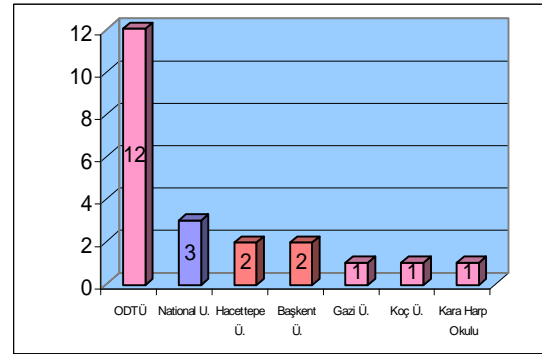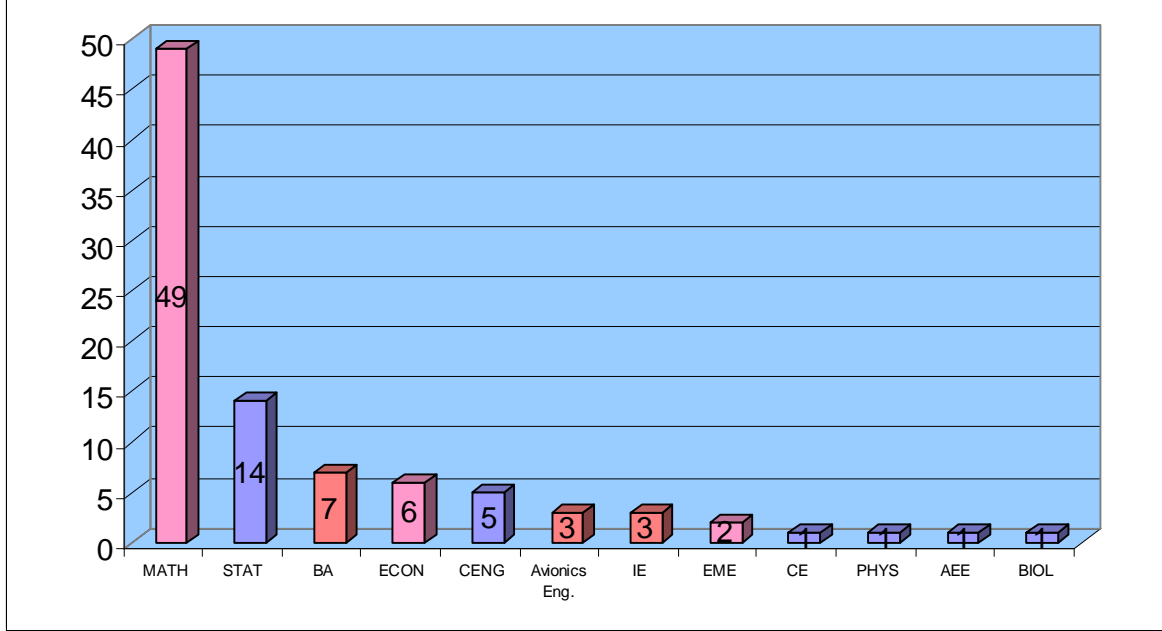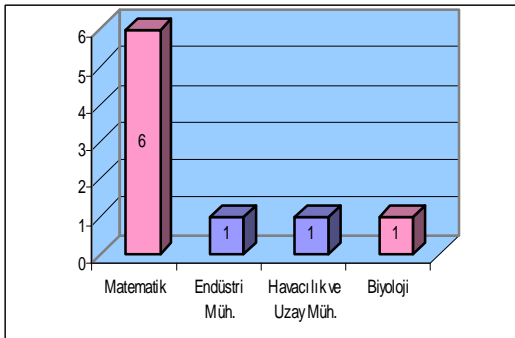
2009-2010

BİLİMSEL HESAPLAMA
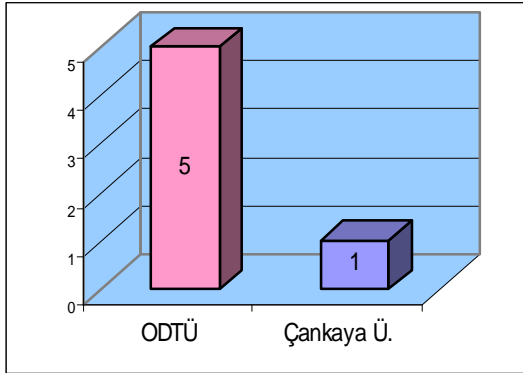
FİNANSAL MATEMATİK
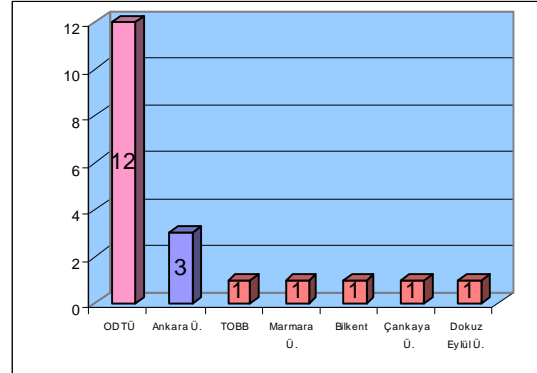
AKTÜERYA BİLİMLERİ

KRİPTOGRAFİ

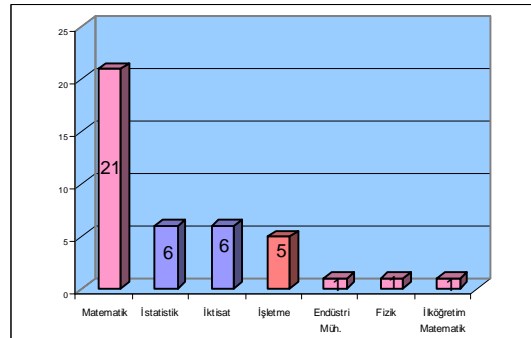# UME'YE KABUL EDİLEN ÖĞRENCİLERİN MEZUN OLDUKLARI BÖLÜMLERE GÖRE DAĞILIMI

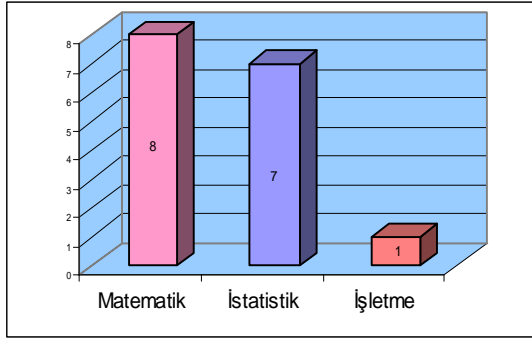# UME'YE KABUL EDİLEN ÖĞRENCİLERİN LİSANS DERECELERİNİ ALDIKLARI BÖLÜMLER
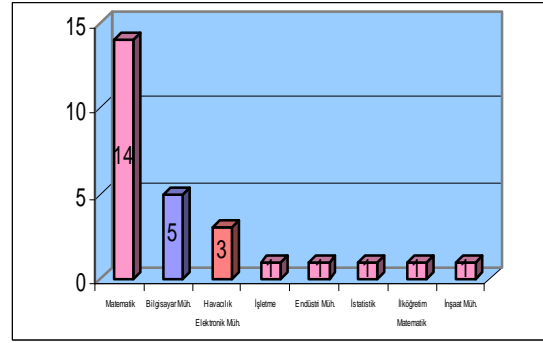
2009-2010

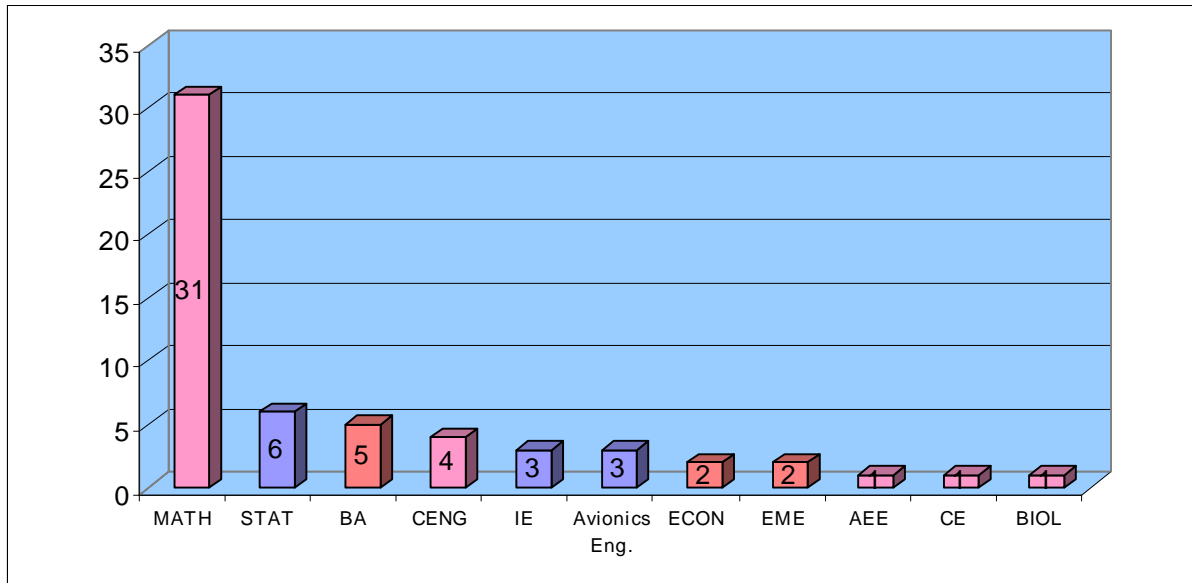**BİLİMSEL HESAPLAMA**

FİNANSAL MATEMATİK
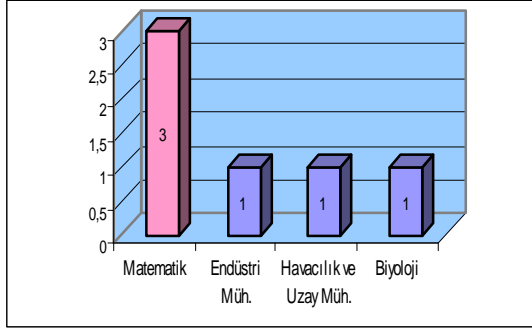
AKTÜERYA BİLİMLERİ

KRİPTOGRAFİ

UME'YE KAYIT YAPTIRAN ÖĞRENCİLERİN MEZUN OLDUKLARI BÖLÜMLERE GÖRE DAĞILIMI
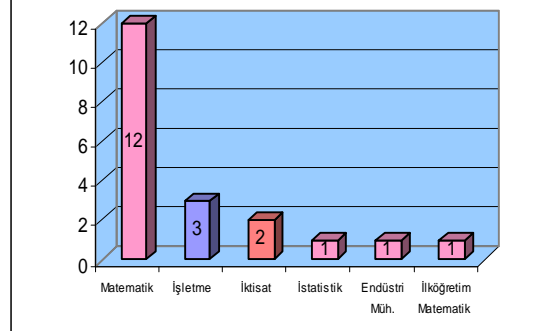
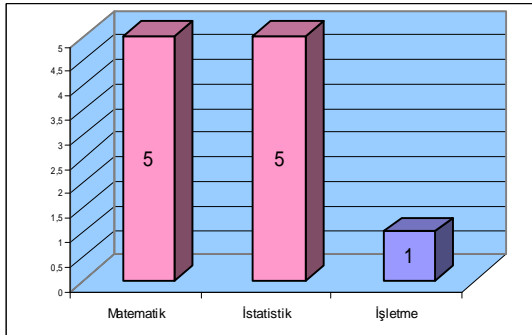# UME'YE KAYIT YAPTIRAN ÖĞRENCİLERİN LİSANS DERECELERİNİ ALDIKLARI BÖLÜMLER

2009-2010

BİLİMSEL HESAPLAMA

FİNANSAL MATEMATİK

AKTÜERYA BİLİMLERİ

KRİPTOGRAFİ
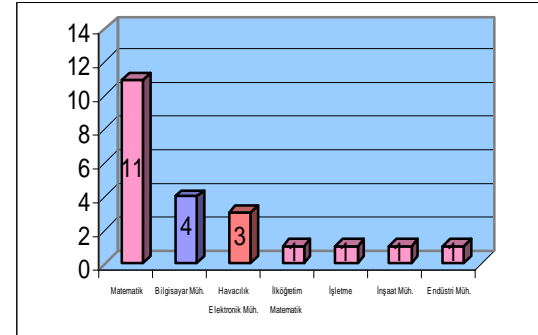
UME DERSLERİNİ ALAN UME DIŞI ÖĞRENCİLERİN BÖLÜMLERE GÖRE DAĞILIMI

2008-2009 II.Dönem

Pie chart - 2008-2009 II.Dönem:
- ES; 1
- BIOL; 1
- IR; 2
- MATH; 11
- CENG; 2
- BME; 3
- GGIT; 3
- ME; 3
- PHYS; 5
- EE; 8
- Özel Öğr.; 9
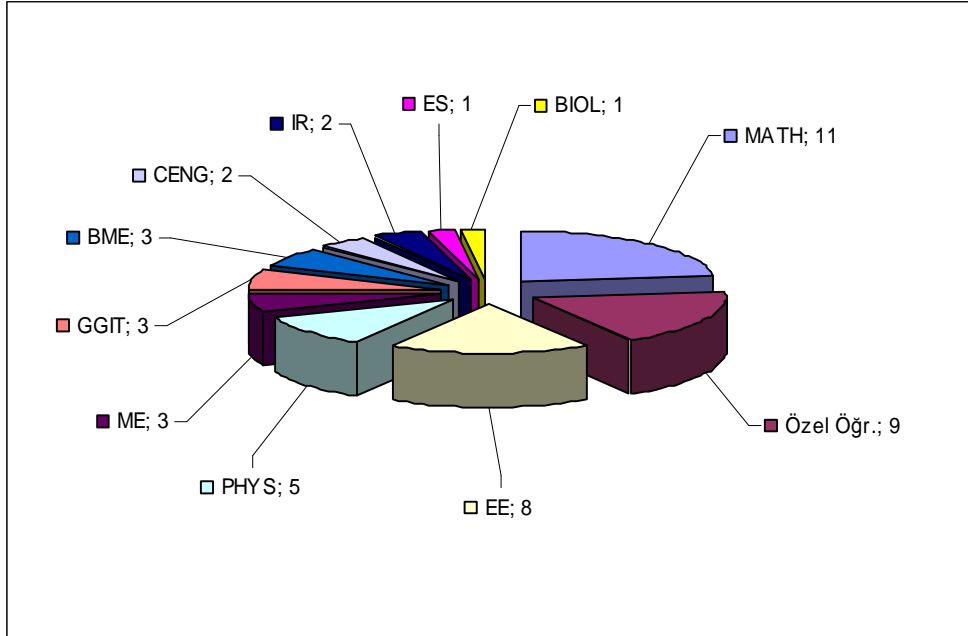
Toplam Öğrenci Sayısı = 249

UME Dışı Öğrenci Sayısı = 48 (19%)

2009-2010 I.Dönem

Pie chart - 2009-2010 I.Dönem:
- BIOL; 2
- ME; 1
- IE; 1
- IR; 1
- BME; 2
- STAT; 2
- ECON; 2
- PHYS; 2
- AEE; 3
- CE; 3
- GGIT; 3
- EE; 3
- MATH; 4
- BIN; 6
- Özel Öğr.; 17
- CENG; 6
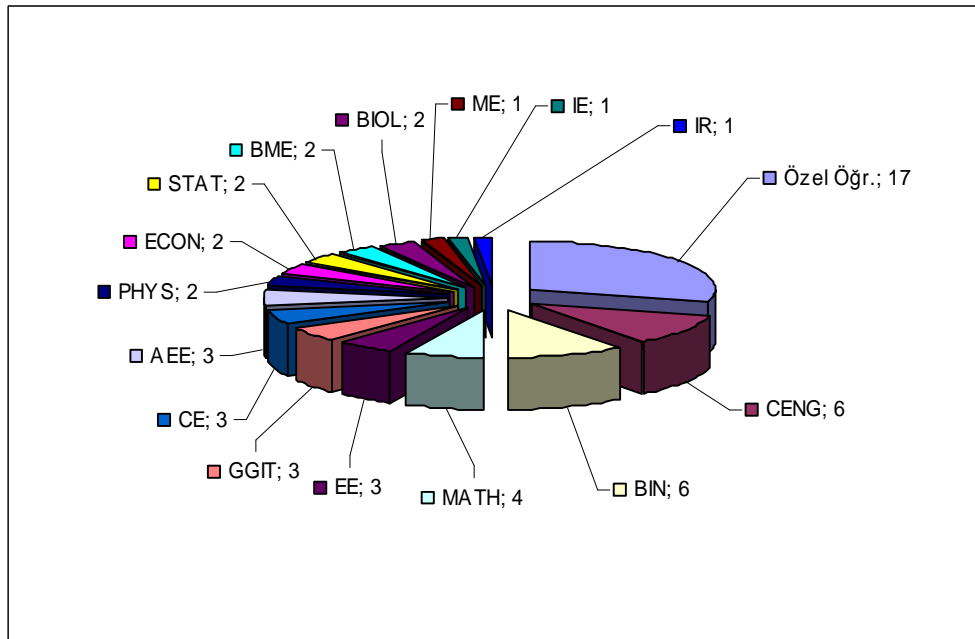
Toplam Öğrenci Sayısı = 301

UME Dışı Öğrenci Sayısı = 58 (19%)

DÖNEMSEL VERİLEN TOPLAM NOT SAYISI

2008-2009 I. Dönem

FD ; 2
DD ; 10
FF ; 10
NA ; 15
DC ; 7
AA ; 88
CC ; 10
CB ; 9
BB ; 55
BA ; 45

2008-2009 II. Dönem

DD ; 10
FD ; 5
FF ; 8
DC ; 4
NA ; 12
CC ; 13
AA ; 70
CB ; 27
BB ; 37
BA ; 63

2009-2010 I. Dönem

DD ; 2
FD ; 5
FF ; 9
DC ; 14
NA ; 12
CC ; 16
AA ; 103
CB ; 20
BB ; 54
BA ; 56
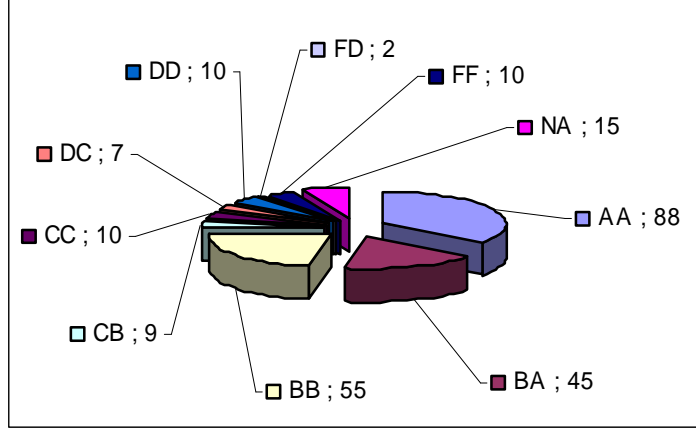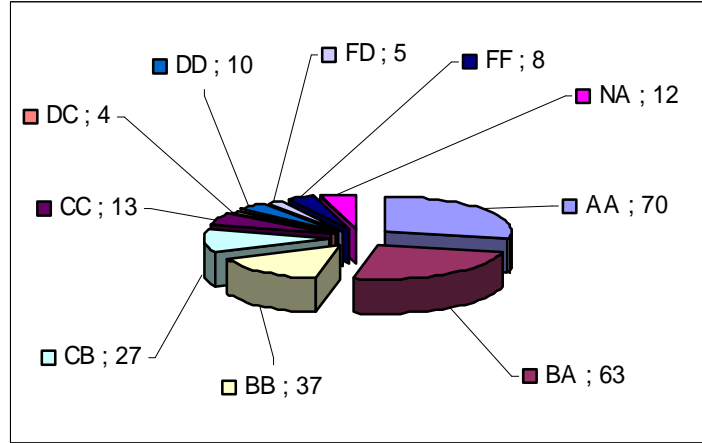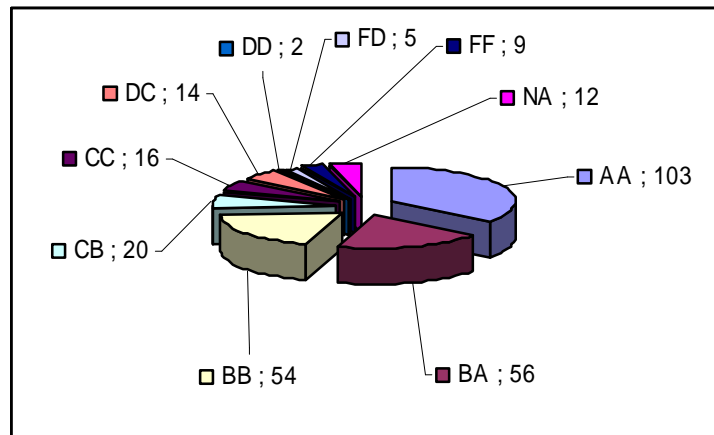
EK: 4
2009 YILINDA MEZUN OLAN ÖĞRENCİLER

Bilimsel Hesaplama Programı

Sevin Gümgüm	"The Dual Reciprocity Boundary Element Method Solution of Fluid Flow Problems" (Doktora Tezi)	Münevver Tezer
Bengisen Pekmen*	"Multilevel Derivative Free Optimization" (Y. Lisans Tezi)	Bülent Karasözen
Andriy Kushnarov	"Numerical Method for Conform Reflection" (Y. Lisans Tezi)	Hakan Öktem
Sedat Sarıkaya	"Combination of Conventional Regularization Methods and Genetic Algorithms for Solving the Inverse Problem of Electrocardiography" (Y.Lisans Tezi)	Yeşim Serinağaoğlu

Hayat Sigortası Opsiyonu

Serpil Özler	"Retrospective Hedging: A Study of Futures Contracts on TurkDEX" (Bitirme Projesi)	Seza Danışoğlu

* Enstitümüzde doktoraya devam eden öğrenciler

Finansal Matematik Programı

Özgenay Çetinkaya	"Pricing Default and Prepayment Risks of Fixed-Rate Mortgages in Turkey an Application of Explicit Finite Difference Method" (Y. Lisans Tezi)	**Işıl Erol**
Zeynep Canan Temiz	"Pricing Inflation Indexed Swaps and Swaptions Using an HJM Model" (Y. Lisans Tezi)	**Azize Hayfavi**
Rukiye Yılmaz	"Pricing The Mortgage Default Option in Turkey With Cox Ross Rubinstein Model" (Bitirme Projesi)	**Işıl Erol**
Erkan Büyükbebeci	"Comparison of Mars, Cmars and Cart in Predicting Default Probabilities for Emerging Markets" (Bitirme Projesi)	**Gerhard W. Weber**
Burcu İren	"Term Structure Analysis of Bond Yields By Macro-Finance Representation" (Bitirme Projesi)	**Kasırga Yıldırak**
Kadir Gürsoy	"The Effects of Latest Parametric Reform on Financial Sustainability and Actuarial Fairness for Pay-As-You-Go Pension System in Turkey and Some Alternative Reform Options" (Bitirme Projesi)	**Burçak B. Erkan**

Kriptografi Programı

Elif Saygı	"Results on LCZ Sequences and Quadratic Forms'' (Doktora Tezi)	**Ferruh Özbudak**
Onur Koçak	"Design and Analysis of Hash Functions" (Y. Lisans Tezi)	**Ali Doğanaksoy**
Aslı Darbuka	"Related-key Attacks on Block Ciphers" (Y. Lisans Tezi)	**Ali Doğanaksoy**

Cihangir Tezcan*	"Impossible Differential Cryptanalysis of Reduced Round HIGHT" (Y. Lisans Tezi)	**Ali Doğanaksoy**
Derya Özkaya	"A Survey on Quaternary Codes and Their Binary Images" (Y. Lisans Tezi)	**Melek Diker Yücel**
Köksal Muş*	"An Alternative form for Elliptic Curve Crpyotography: Edwards Curves" (Y. Lisans Tezi)	**Sefa Feza Arslan**
Neşe Öztop*	"Combined Attacks on Block Ciphers" (Y. Lisans Tezi)	**Ali Doğanaksoy**
Pelin Erdem	"A framework for document/file authorization in document management systems via PKI" (Bitirme Projesi)	**Ersan Akyıldız**
Emre Yüce*	"A Case Study on the Security of IPV6 Transition Methods" (Bitirme Projesi)	**Ali Doğanaksoy**
Bilal Alam*	"Secure Email Transactions Using S/Mime " (Bitirme Projesi)	**Ali Doğanaksoy**
Riaz Muhammad*	"A Survey of Solinas Primes" (Bitirme Projesi)	**Ersan Akyıldız**
Hakan Gürbaşlar	"Linear Characteristics of Whirlpool Block Cipher" (Bitirme Projesi)	**Ali Doğanaksoy**
Ünal Tatar	"Steganography and Steganalysis" (Bitirme Projesi)	**Ali Doğanaksoy**
Yavuz Gökırmak	"The Analysis of Nonlinear Boolean Function Generation Via Genetic Algorithm" (Bitirme Projesi)	**Melek Yücel**

* Enstitümüzde doktoraya devam eden öğrenciler

EK: 5
YENİ AÇILAN DERSLER

METU INSTITUTE OF APPLIED MATHEMATICS

Course Title:	**Risk Management and Insurance**
Course Code:	**IAM 547**
Credit:	**(3-0)3**
Instructor's Name:	Fikret Kutuk, MBA, Actuary, fikret.kütük@hazine.gov.tr, Sevtap Kestel, sevtap.kestel@vwl.uni-freiburg.de,
Prerequisites:	None
Content:	- Basic concepts in Risk Management: Introduction to risk, risk identification and evaluation, introduction to various risk exposures, risk management techniques: non-insurance measures - Secondary Risk Management/Legal Principles in Risk and Insurance: Fundamental principles, analysis of insurance contracts, selection and implementation of RM techniques - Property and Liability Risks: Automobile insurance, homeowners insurance - Life and Health Risks: Fundamentals of life insurance, health insurance, retirement planning, employee benefits, financial and estate planning - The Insurance Industry: Types of insurers and marketing systems, Insurance company operations - Risk measures and modelling: Utility function, optimal insurance, excess loss insurance, risk models and reinsurance models
Aims:	Financial objectives of corporate risk management process, empirical evidence of how and why firms manage risk, institutional environment and regulations of risk management. This course surveys risk fundamentals, the risk management process, and insurance as a systematic approach to transfer and finance risk. It examines how insurance offers financial protection against major risks individuals face, how the insurance market is structured, and how and why the industry is regulated. This course also provides the theories and practical applications from the industry as well as issues related to the furtherance of insurance as a viable risk management solution.
Learning Outcomes:	Understanding the risk structure and the methods to handle the risk in insurance, how to determine risk for different types of insurance, insurance operations and products.
Suggested Textbooks:	Trieschmann, Hoyt, Sommer, Risk Management and Insurance, 12th Ed., 2005. Vaughan, E., Vaughan, T., Essentials of Insurance: A Risk Management Perspective. Rejda, G., Principles of Risk Management and Insurance, 6th Ed. 1998. Hossack, Pollard, Zehnwirth, Indroductory statistics with applications in general insurance, Cambridge, 1995.
Resources:	To be given during the lectures
Others	**Assessment:** Case studies as homework will be assigned during the semester. A term project based on the recent publications will be assigned to each student. Class participation is expected. Students are strongly recommended to attend to the lectures. Homework 10% Term Project: 30% Final Exam 60% Total Grade 100% You are required to gain the 50% of the final exam to pass the course.

METU INSTITUTE OF APPLIED MATHEMATICS

Course Title:	**Special Topics: Algorithmic Number Theory**
Course Code:	**IAM 719**
Credit:	**(3-0) 3**
Instructor's Name:	Doç. Dr. Emrah Çakçak
Prerequisites:	Public Key Cryptography, Consent of the Instructor.
Content / Aims	The aim of this course is to introduce advanced topics in algorithmic number theory for cryptographic purposes such as number field sieve algorithm for integer factorization and cryptography based on ideal class groups of quadratic number fields.
Learning Outcomes:	After taking this course the students will have enough background on algorithms for number fields to apply them in cryptographic purposes such as integer factorization using number field sieve algorithm.
Outline:	1. Basic algorithms of number theory: Continued Fractions, Solving Polynomial equations modulo a prime number, a prime power, over the integers. 2. Solving the Pell equation. 3. Smooth numbers and the quadratic sieve. 4. The number field sieve. 5. Computing the invariants of a number field.
Suggested Textbooks/Resources:	1. Buhler J.P., Stevenhagen P. (eds.): Algorithmic Number Theory, MSRI Publications 44 (2008) (online version available at http://www.msri.org/communications/books/Book44/contents.html) 2. Cohen H.: A Course in Computational Algebraic Number Theory. Springer (1995).

METU INSTITUTE OF APPLIED MATHEMATICS

Course Title:	**Special Topics: Algebraic Aspects of Nonlinear Functions**
Course Code:	**IAM 722**
Credit:	(3-0)3
Instructor's Name:	Prof. Dr. Ferruh Özbudak
Prerequisites:	Consent of the instructor
Content:	This course introduces various aspects of nonlinearity in cryptography together with its connections to geometry, number theory, design theory, coding theory and related areas.
Aims:	The aim of this course is to introduce algebraic aspects of power polynomials used to construct (almost) perfect nonlinear (APN) and almost bent (AB) functions. After giving some basic facts about Boolean functions such as nonlinearity, differential uniformity, we shall discuss all known characterizations of APN and AB function. The emphasis will be given on the affine equivalence classes such as extended affine and Carlet-Charpin-Zinoviev (CCZ) equivalence. We will study characteristic properties of APN and AB functions.
Learning Outcomes:	This course will be benefical for students interested in cryptographically secure nonlinear function construction methods. Moreover, at the end of this course, students should have a good overview of recent approaches in APN and AB functions.
Suggested Textbooks:	• T. Beth, D. Jungnickel and H. Lenz, Design Theory, 2nd edition, Cambridge University Press, 1999 QA166.25.B47 • L. Budaghyan, The Equivalence of Almost Bent and Almost Perfect Nonlinear Functions and Their Generalizations, PhD. Thesis, 2005 • C. Canniere, Analysis and Design of Symmetric Encryption Algorithms, PhD. Thesis – Chapter 5, 2007 • C. Carlet, Vectorial Boolean Functions for Cryptography, 2008 • C. Carlet, Boolean Functions for Cryptography and Error Correctiong Codes, 2008. • M. Maxwell, Almost Perfect Nonlinear Functions and Related Combinatorial Structures, PhD. Thesis, 2005.
Outline:	• Week 1: General princples, Boolean func., Walsh transforms, nonlinearity, differential uniformity, APN and AB functions, s-boxes criteria. • Weeks 2 - 5: Classification of nonlinear functions, known APN and AB functions. • Weeks 6 - 8: Characterization of power polynomials according to differential properties (Gold, Kasami, Welch, Niho, inverse case). • Weeks 9 - 14: Equivalence Problem, extended affine equivalence, CCZ equivalence.
Reference Material	• M. Brinkman and G. Leander, On the Classification of APN Functions up to Dimension Five, WCC'07, pp.39-48, 2007 • L. Budaghyan, The Simplest Method for Constructing APN Polynomials EA-inequivalent to Power Functions, WAIFI'07, LNCS 4547, pp.177-188, 2007. • E. Byrne, C. Bracken and N. Markin, New Families of Quadratic Almost Perfect Nonlinear Trinomials and Multinomials, Finite Fields and Theri Applications, 14, No.3, pp.703-714, 2008 • C. Carlet, P. Charpin and V. Zinoviev, Codes, Bent Functions and Permutations Suitable for DES-like Cryptosystems, Des. Codes and Cryptography, Vol.15, pp.125-156, 1998. • H. Dobbertin, Almost Perfect Nonlinear Power Functions over GF(2^n) : the Niho Case,. Inform. And Comput., 151, pp.57-72, 1999. • H. Dobbertin, D. Mills, E. Müller, A. Pott and W. Willems, APN Functions in Odd Characteristic, 2001. • H. Dobbertin, Almost Perfect Nonlinear Power Functions over GF(2^n) : the Welch Case, IEEE Trans. Inform. Theory, 45, pp.1271-1275, 1999. • R. Gold, Maximal Recursive Sequences with 3-valued Recursive Cross-Correlation Functions, IEEE Trans. Ing. Theory, Vol. IT-14, no.1, pp. 154-156, 1968 • D. Hertel and A. Pott, A Characterization of a Class of Maximum Nonlinear Functions, • D. Hertel and A. Pott, Two Results on Max. Nonlinear Functions, Des. Codes and Cryptography, DOI 10.1007/s10623-007-9124-z, 2007. • D. Jungnickel and A. Pott, Perfect and Almost Perfect Sequences, Discrete Applied Mathematics, Vol. 95, pp. 351-359, 1999. • T. Kasami, The Weight Enumerators of Several Classes of Subcodes of the Second Order Binary Reed-Muller Codes, Information and Control, Vol.18, pp.369-394, 1971. • P. Langevin and P.Veron, On the Nonlinearity of Power Functions, Des. Codes and Cryptography, 2005. • K. Nyberg, Differentially Uniform Mappings for Cryptography, EUROCRYPT'93, LNCS, pp. 55-64, 1994. • E. Pasalic, On Cryptographically Significant Mappings over GF(2^n), WAIFI '08, Arithmetic of Finite Fields, Vol.5130, 2008

METU INSTITUTE OF APPLIED MATHEMATICS

Course Title:	**Special Topics: Introduction to Cryptographic Hardware Design**
Course Code:	**IAM 724**
Credit:	**3(3-0)**
Instructor's Name:	Dr. Tolga Yalçın
Prerequisites:	EE 348 Introduction to Logic Design, or CEng 232 Logic Design, or any fundamental logic design course
Content:	Combinational and sequential logic design, digital systems; hardware description languages (HDLs), reconfigurable logic devices; basic building blocks for cryptography; hardware design block ciphers, stream ciphers, assymetrical ciphers; design examples
Aims:	To give an inside to fundamentals of digital system design for cryptography, design tools and considerations.
Learning Outcomes:	Students will be able to design basic cryptographic modules on reconfigurable logic devices (FPGAs, CPLDs) using hardware description languages. They will also be able to understand the hardware complexity of a cryptographic algorithm and decide on a hardware, software or a co-design solution.
Suggested Textbooks:	– Digital Logic and Computer Design, M. Mano – Cyrptographic Algorithms on Reconfigurable Hardware, F. R. Henriquez et al – Various theses, papers and handouts
Outline:	Review of digital systems and hardware descrption languages – Digital design fundamentals: Number systems, signal respresentation – Combinational digital circuits – Hardware description languages: VHDL and Verilog-HDL comparison – Introduction to Verilog-HDL – Combinational circuit design using Verilog-HDL Sequential digital systems – Sequential digital circuit fundamentals and design – Finite state machines – Registers and memories – Sequential circuit design using Verilog-HDL Digital system design examples – Design of combinational arithmetic units – Design of sequential arithmetic units – Microcoded finite state machine design Basic building blocks for cryptography – Design of Galois Field computation units – Digital implementation of S-boxes Block cipher hardware design: AES Stream cipher hardware design: SHA Assymetric cryptographic hardware design: RSA Custom design examples
Resources:	Institute of Applied Mathematics Cryptographic Hardware Laboratory

2009–2010 Güz Dönemi

METU INSTITUTE OF APPLIED MATHEMATICS

Course Title:	**Special Topics: Cryptographic Processor Design**
Course Code:	**IAM 725**
Credit:	3(3-0)
Instructor's Name:	Tolga Yalçın (tyalcin@metu.edu.tr)
Prerequisites:	Basic logic design course, basic computer architecture/organization course and IAM 724: Introduction to Cryptographic Hardware Design
Content:	Review of digital system design and hardware description languages (HDLs), reconfigurable logic devices; design of computer systems and components, processor design, microprogramming, memory management, crypto co-processors and functional units
Aims:	To give the students theoretical and practical background to design a programmable cryptographic processor.
Learning Outcomes:	Students will be able to design a basic stored program computer with cryptographic processing capabilities, and implement it using Verilog-HDL for FPGAs. They will also be able to address advanced issues such as pipelining, caching, resource sharing, retiming.
Suggested Textbooks:	– Computer Organization and Design: The Hardware/Software Interface, D. Patterson and J. Hennessy – Computer Organization, V. C. Hamacher et al – Computer Architecture and Organization, M. Mano
Outline:	– Digital system design and tools revisited – Basic computer organization – Instruction formats and instruction sets – ALU design – Datapath design – Control design: Hardwired and microprogrammed – Pipelining – Memory systems – Complex arithmetic unit and cryptographic co-processor design
Resources:	

METU INSTITUTE OF APPLIED MATHEMATICS

Course Title:	**Special Topics: Combinatorics**
Course Code:	**IAM 727**
Credit:	(3-0)
Instructor's Name:	Emrah Çakçak (cakcak@metu.edu.tr)
Prerequisites:	Consent of the Instructor.
Content / Aims	The aim of this course is to introduce basic and advanced topics of combinatorics.
Learning Outcomes:	Familiarity to most of the classical definitions and results of combinatorics.
Outline:	1. Basic enumeration techniques. 2. Distinct representatives, Hall's theorem. 3. Permanents, van der Waerden conjecture. 4. Graphs, Euler's theorem, DeBruijn's theorem. 5. Ramsey's theorem. 6. Extremal Problems, Dilworth's theorem. 7. Block Designs. 8. Difference sets. 9. Finite Geometries. 10. Orthogonal Latin Squares. 11. Hadamard Matrices. 12. General Constructions of Block Designs.
Suggested Textbooks/Resources:	1. Hall, M. Jr.: Combinatorial Theory. 2. van Lint, J. H.; Wilson, R. M.: A Course in Combinatorics. 3. Rosen, K. H.; Michaels, J. G. et al..: Handbook of Discrete and Combinatorial Mathematics. 4. Cameron, P. J.: Notes on Counting. (Lecture Notes) 5. Cameron, P. J.: Combinatorics: topics, techniques, algorithms.

METU INSTITUTE OF APPLIED MATHEMATICS

Course Title:	**Special Topics: Stochastic Energy Pricing Models**
Course Code:	**IAM 753**
Credit:	3(3-0)
Instructor's Name:	Martin Rainer (mrainer@metu.edu.tr)
Prerequisites:	Stochastic Calculus (e.g. like textbook of Lamberton-Lapeyre); and consent of the instructor;
Content:	Motivation: Energy markets and related pricing models for the major traded assets and financial instruments becomes increasingly important for Turkey, due to several forthcoming projects in the energy markets which make Turkey a main distribution hub between the Middle East and Europe. This course concentrates on mathematical concise models for the pricing of assets and derivatives in the related markets of gas, electricity, and temperature. The framework is that of general Levy processes, related Ornstein-Uhlenbeck processes and semimartingales, including jumps and stochastic volatility.
Aims:	After this course the participant will have a detailed understanding of major mathematical models for energy markets, their application to the gas, electricity, and temperature markets and their derivatives. The assumptions, advantages and drawbacks of alternative models are clarified. In parallel to the theory, hands-on examples will be elaborated by the participants using MATHLAB and Excel.
Learning Outcomes:	At the end of this course, students should know how to price assets and derivatives in the major energy markets. The critical judgment towards alternative modeling approaches will be sharpened. The student will also learn how to structure complex tasks, such as the construction of electricity forward curves. Mathematical knowledge and methodology of general semi-martingales and Levy processes will be deepened and trained. This course is an important step for participants who wish to do their MSc or PhD thesis in energy market models, and/or wish to prepare to work as quantitative analyst for a trading desk in energy markets.
Suggested Textbooks:	Lecture notes will be prepared during the course. Most of the content of this course is covered in: F. Benth, J.S. Benth, S. Koekebakker, Stochastic Modelling of Electricity and Related Markets, 2008 L. Clewlow, C. Strickland, Energy Derivatives: Pricing and Risk Management, 2000 A. Eydeland, K. Wolyniec, Energy and Power Risk Management, 2003 Further special references will be given during the course.
Outline:	Energy markets survey (1 week), Energy spot price models (1 week), Forward and swap pricing (1 week), Gas spot and future modeling (1 week), HJM modeling approach to forwards and swaps (1 week), Construction of electricity forward curves (1 week), Electricity future model (1 week), Principal component analysis (1 week), Model calibration (1 week), Options on forwards and swaps (1 week), Asian and spread options (1 week), Temperature modeling (1 week), Temperature derivatives (1 week)
Resources:	LaTEX , MATHLAB, Excel

EK: 6
2009 YILINDA AÇILAN DERSLERİN LİSTESİ

2008–2009 II. Döneminde verilen dersler

Anabilim Dalı	Dersin Kodu	Dersin Adı	Öğretim Üyesi	Öğr. Sayısı IAM	Diğ.	Top.
Kriptografi	IAM 502	Stream Ciphers	Ali Doğanaksoy	13	1	14
	IAM 504	Public Key Cryptography	Emrah Çakçak	14	1	15
	IAM 512	Block Ciphers	Melek Yücel	16	2	18
	IAM 525	Game Theory	Ersan Akyıldız-/ Z. S. Alparslan Gök	5	6	11
	IAM 719	Special Topics: Algorithmic Number Theory	Emrah Çakçak	3	1	4
	IAM 722	Special Topics: Algebraic Aspects of Nonlinear Functions	Ferruh Özbudak	13	-	13
	IAM 724	Special Topics: Introduction to Cryptographic Hardware Design	Tolga Yalçın	15	2	17

Anabilim Dalı	Dersin Kodu	Dersin Adı	Öğretim Üyesi	Öğr. Sayısı IAM	Diğ.	Top.
Bilimsel Hesaplama	IAM 525	Game Theory	Ersan Akyıldız-/ Z. S. Alparslan Gök	5	6	11
	IAM 529	Applied Nonlinear Dynamics	Bülent Karasözen	5	4	9
	IAM 562	Introduction to Scientific Computing II	Hakan Öktem	4	3	7
	IAM 570	Hybrid Systems	Hakan Öktem	4	0	4
	IAM 664	Inverse Problems	Gerhard W.Weber- İlkay Ulusoy	4	11	15
	IAM 665	Advanced Continuous Optimization	G.W.Weber- Bülent Karasözen	3	2	5
	IAM 748	Special Topics: Portfolio Optimization	Gerhard W. Weber	3		3

Anabilim Dalı	Dersin Kodu	Dersin Adı	Öğretim Üyesi	Öğr. Sayısı IAM	Diğ.	Top.
Finansal Matematik	IAM 520	Financial Derivatives	Seza Danışoğlu	23	1	24
	IAM 522	Stochastic Calculus for Finance	Azize Hayfavi	24	5	29
	IAM 524	Financial Economics	Esma Gaygısız	24	3	27
	IAM 525	Game Theory	Ersan Akyıldız- Z. S. Alparslan Gök	5	6	11
	IAM 547	Risk Management and Insurance	Sevtap Kestel- Fikret Kütük	6	1	7
	IAM 548	Stochastic Processes for Insurance and Finance	A.Devin Sezer- Ömer Gebizlioğlu	6	4	10
	IAM 554	Interest Rate Models	Martin Rainer	4	1	5
	IAM 583	Pension Fund Mathematics	Ömer Gebizlioğlu	6		6
	IAM 748	Special Topics: Portfolio Optimization	Gerhard W. Weber	3		3
	IAM 750	Special Topics: Energy Trade and Risk Management	Coşkun Küçüközmen	6		6

2009–2010 I. Döneminde verilen dersler

Anabilim Dalı	Dersin Kodu	Dersin Adı	Öğretim Üyesi	Öğr. Sayısı		
				IAM	Diğ.	Top.
Kriptografi	IAM 501	Introduction to Cryptography	Ali Doğanaksoy	15	13	28
	IAM 503	Applications of Finite Fields	Emrah Çakçak	19	5	24
	IAM 509	Algebraic Aspects of Cryptography	Ersan Akyıldız	9		9
	IAM 519	Basic Mathematics for Cryptography	Abdürrahim Yılmaz	5	1	6
	IAM 725	Special Topics: Cryptographic Processor Design	Tolga Yalçın	6		6
	IAM 727	Special Topics : Combinatorics	Emrah Çakçak	11	1	12

Anabilim Dalı	Dersin Kodu	Dersin Adı	Öğretim Üyesi	Öğr. Sayısı		
				IAM	Diğ.	Top.
Bilimsel Hesaplama	IAM 556	Simulation	İnci Batmaz	7	1	8
	IAM 561	Introduction to Scientific Computing I	Ömür Uğur	3	5	8
	IAM 564	Basic Algorithms and Programming	Hakan Öktem	8	2	10
	IAM 566	Numerical Optimization	Gerhard W.Weber	7	6	13
	IAM 567	Mathematical Modelling	Hakan Öktem	6	2	8
	IAM 751	Special Topics: Advanced Mathematical Methods in Finance	Gerhard W. Weber	3	1	4

Anabilim Dalı	Dersin Kodu	Dersin Adı	Öğretim Üyesi	Öğr. Sayısı		
				IAM	Diğ.	Top.
Finansal Matematik	IAM 521	Financial Management	A.Oran-S.Danışoğlu-N.Güner	28	2	30
	IAM 526	Time Series Applied to Finance	Kasırga Yıldırak	19	1	20
	IAM 530	Elements of Statistics and Probability	Ceylan Yozgatlıgil	31	13	44
	IAM 541	Probability Theory	Yeliz Yolcu	17	3	20
	IAM 543	Regulation and Supervision of Risks	Coşkun Küçüközmen	20		20
	IAM 556	Simulation	İnci Batmaz	7	1	8
	IAM 612	Financial Modeling with Jump Processes	Azize Hayfavi	7		7
	IAM 751	Special Topics: Advanced Mathematical Methods in Finance	Gerhard W. Weber	3	1	4
	IAM 753	Special Topics: Stochastic Energy Pricing Models	Martin Rainer	1	1	2

Anabilim Dalı	Dersin Kodu	Dersin Adı	Öğretim Üyesi	Öğr. Sayısı		
				IAM	Diğ.	Top.
Aktüerya Bilimleri	IAM 521	Financial Management	A.Oran-S.Danışoğlu-N.Güner	28	2	30
	IAM 530	Elements of Statistics and Probability	Ceylan Yozgatlıgil	31	13	44
	IAM 541	Probability Theory	Yeliz Yolcu	17	3	20
	IAM 546	Actuarial Risk Theory	Sevtap Kestel	11	1	12
	IAM 582	Life Insurance Mathematics	Sevtap Kestel	11	-	11
	IAM 584	Advanced Actuarial Mathematics	Ömer Gebizlioğlu	6	-	6