



AYDIN ADNAN MENDERES UNIVERSITY COURSE INFORMATION FORM

Course Title		Scientific Research Methods in Mathematics Education							
Course Code		MTE501		Course Level		Second Cycle (Master's Degree)			
ECTS Credit	6	Workload	150 (Hours)	Theory	3	Practice	0	Laboratory	0
Objectives of the Course		To develop scientific attitude by having the students gain research systematicity and scientific approach: and to have students gain the agabeylity of using, applying and interpreting in research by informing the students about research methods and techniques							
Course Content		* Relationship between Science and Philosophy * Scientific Methods * Research and Research Models. * Processes and stages of research * Research Models * Universe- Sample * Data and Types of Data * Methods of Analayzing Data * Writing reports and APA standards							
Work Placement		N/A							
Planned Learning Activities and Teaching Methods				Explanation (Presentation), Demonstration, Discussion, Case Study, Project Based Study, Individual Study, Problem Solving					
Name of Lecturer(s)		Prof. Ersen YAZICI							

Assessment Methods and Criteria

Method	Quantity	Percentage (%)
Midterm Examination	1	30
Final Examination	1	70

Recommended or Required Reading

1	1. Balcı, Ali. (2001). Sosyal Bilimlerde Araştırma. Ankara: PegemA Yayıncılık.
2	2. Barzun, Jacques and Henri F. Graff. (2001). Modern Araştırmacı. Ankara: Tübitak Popüler Bilim Kitapları.
3	3. Bogdan, R.C. and S.K. Biklen. (1992). Qualitative Research for Education. USA : Allyn and Bacon Borden's,
4	4. Kenneth S. And Bruce B. Abbott. (2002). Research Design and Methods. USA : McGraw Hill.
5	5. Büyüköztürk, Şener. (2001). Deneyisel Desenler: Öntest-Sontest Kontrol Grubu Desen ve Veri Analizi. Ankara: PegemA Yayıncılık
6	6. Büyüköztürk, Şener. (2003). Sosyal Bilimler İçin Veri Analizi El Kitabı. Ankara: PegemA Yayıncılık.
7	7. Creswell, John W. (2003). Research Design: Qualitative, Quantitative and Mixed Methods Approaches. USA: Sage Pub. Day,
8	8. Robert A. (1996). Bilimsel Bir Makale Nasıl Yazılır ve Yayımlanır? Ankara: TÜBİTAK yayınları.
9	9. Ekiz, Durmuş. (2003). Eğitimde Araştırma Yöntem ve Metotlarına Giriş. Ankara : Anı Yayıncılık..
10	10. Fraenkel, Jack R. And Norman E. Wallen. (1996). How to Design, and Evaluate Research in Education. USA : Mc Graw Hill, Inc.
11	11. Gökçe, Birsen. (1999). Toplumsal Bilimlerde Araştırma. Ankara: Savaş yayınevi.
12	12. Hall, George M. (1998). Bilimsel Makale Yazımı. Çev: Hasan Doğruyol. Ankara: Nobel Yayıncılık.
13	13. Judd, Charles M., Eliot R. Smith and Louise H. Kidder. (1991). Research Methods in Social Relations. Sixth Edition. USA: Harcourt Brace Jovanovich Inc.
14	14. Kaptan, Saim. (1995). Bilimsel Araştırma ve İstatistik Metotları. Ankara.
15	15. Karasar, Niyazi. (1994). Bilimsel Araştırma Yöntemi. Ankara: 3A Araştırma, Eğitim Danışmanlık Ltd. Şti. Kuş, Elif. (2003). Nitel – Nicel Araştırma Yöntemleri. Ankara: Anı Yayıncılık

Week	Weekly Detailed Course Contents	
1	Theoretical	Description of the course: Content, necessity, importance, forming the expectations, explaining the criteria of process and evaluation. A general view to science and scientific research methods.
2	Theoretical	Biliminin tanımı, işlevleri, bilgi ve türleri, bilim ve felsefe ilişkisi
3	Theoretical	Definition of Scientific Method, its stages, qualities and the basic assumptions it depends. Dialectical methstod and its relationship with scientific metho.Deduction and induction.
4	Theoretical	Descriptive studies: Reviewing, ethnographic, historic and action studies.
5	Theoretical	Correlational Studies
6	Theoretical	Causal- Comparative Studies
7	Theoretical	Experimental Studies
8	Intermediate Exam	Midterm exam



9	Theoretical	Features and the ways to write the research problem, statement of the problem, minor problems (alt problemler) and hypotheses.
10	Theoretical	Features and ways to write assumptions and limitations, purpose and significance of the study.
11	Theoretical	Population and the methods of taking samples from the population: sampling methods based on probability.
12	Theoretical	Population and the methods of taking samples from the population: Sampling methods of out of possibility and determining the size of the sample.
13	Theoretical	Data and types of data, types of scales, measurement error and validity, reliability, data gathering instruments.
14	Theoretical	Methods of data analysis and corresponding to research designs.
15	Theoretical	Process and stages of writing reports in research, and APA standards.
16	Final Exam	Final exam

Workload Calculation

Activity	Quantity	Preparation	Duration	Total Workload
Lecture - Theory	14	1	3	56
Assignment	5	3	5	40
Term Project	2	3	12	30
Midterm Examination	1	8	2	10
Final Examination	1	12	2	14
Total Workload (Hours)				150
[Total Workload (Hours) / 25*] = ECTS				6

*25 hour workload is accepted as 1 ECTS

Learning Outcomes

1	1. Students will be able to get the information about semantics of basic term concepts related to Scientific research methods.
2	2. Students will know the features of scientific information.
3	3. Students will be eager to apply the stages of scientific method.
4	4. Students will be able to review the related literature and write report about it.
5	5. Students will know the research models, patterns and features.
6	6. Students will be able to write problem and the problem statement.
7	7. Students will be able to distinguish data, data types and their features.
8	8. Students will be able to explain the universe, universe of the study, sampling, sampling types and the features of the subjects (participants) and the cases they are used.
9	9. Students will be able to recognize the rules of scientific ethics.
10	10. Students will be able to write a proposal.

Programme Outcomes (Mathematics Education Master)

1	Learns sufficient theoretical knowledge in the field of mathematics education
2	Uses theoretical knowledge in educational settings
3	Integrates mathematics education knowledge with the other disciplines and products functional knowledge
4	Uses information and communication technologies efficiently in conceptual learning
5	Finds scientific solutions to the problems in the field of mathematics education
6	Evaluates the knowledge critically in the field
7	Participates team projects in the mathematics education field
8	Shares national and international data in the field of mathematics education
9	Comprehends and evaluates science-technology-society and mathematics interactions
10	Comprehends mathematics under the ethical values and takes account of ethical considerations
11	Follows the current development in the mathematics education field
12	Develops strategical plans and evaluates them in the context of quality processes
13	Adopts lifelong learning strategies to his/her studies

Contribution of Learning Outcomes to Programme Outcomes 1:Very Low, 2:Low, 3:Medium, 4:High, 5:Very High

	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10
P1		5	5	5	5	5	5	5	5	5
P2	4	4	5	5	5	4	4	5	4	5



P3	4	5	5	5	4	4	4	4	4	4
P4	5	4	5	5	4	4	5	4	5	5
P5	4	4	5	4	5	4	5	4	5	4
P6	4	4	4	4	4	5	5	5		5
P7	4	5	5	4	5	5	5	4	4	5
P8	4	4	5	4	5	5	5	5	5	5
P9	4	4	5	4	5	5	5	4	5	5
P10	5	4	5	5	5	5	5	4		5
P11	5	5	5	5	5	5	5	5	5	
P12	5	4	5	4	5	5	5	5	4	5
P13		5	5		5	5	4	4		5

