İMEAE 304 - PROBABILITY AND STATISTICS TEACHING - Eğitim Fakültesi - Matematik ve Fen Bilimleri Eğitimi Bölümü

General Info

Objectives of the Course

The aim is to enable students to develop concepts and ideas related to statistics and probability subjects that they will need at a basic level, to establish meaningful relationships between these concepts and ideas, and to develop their statistical thinking and reasoning skills.

Course Contents

Basic concepts of probability, probability types, probability simulations and probability distributions; teaching data collection, organizing, displaying and analyzing data, the concept of distribution, frequency distributions, measures of central tendency and measures of distribution (organizing the course content, using appropriate teaching materials and strategies, etc.); student knowledge about these subjects (understanding and interpreting student ideas about concepts, knowing students' difficulties, mistakes, misconceptions and their reasons); the relationship of these subjects with daily life and other lessons.

Recommended or Required Reading

Etkinlik temelli olasılık ve istatistik öğretimi (Serdar Baltacı, Suphi Önder Bütüner) Teknolojik pedagojik alan bilgisi destekli olasılık ve istatistik öğretimi (Hatice Akkoç, Sibel Yeşildere İmre)

Planned Learning Activities and Teaching Methods

research method, question and answer, cooperative learning

Recommended Optional Programme Components

For this course, basic probability concepts and probability-related gains in secondary school should be known.

Instructor's Assistants

There are no teaching assistants.

Presentation Of Course

The course will be conducted face to face for 15 weeks.

Dersi Veren Öğretim Elemanları

Dr. Öğr. Üyesi Solmaz Damla Gedik Altun

Program Outcomes

1. Prepares activities for effective learning by considering the foundations and learning theories on which concepts related to probability and statistics are based.
2. Analyzes how students perceive concepts related to probability and statistics.
3. 5-8. designs and implements a lesson plan on a subject in the primary mathematics curriculum.
4. Knows the contribution of tools, technology and materials used in probability and statistics teaching to teaching.
5. Identifies, formulates and analyzes real-life problems with statistical and mathematical techniques

Weekly Contents

Order	PreparationInfo	Laboratory	TeachingMethods	Theoretical	Practise
1	ACTIVITY-BASED PROBABILITY AND STATISTICS TEACHING BOOK PLEASE READ CHAPTER 1.		FOR THE RELEVANT SECTION, NARRATIVE METHOD, DISCUSSION METHOD, QUESTION AND ANSWER AND ACTIVITY-BASED EXPLANATION WILL BE USED.	THE FIRST STEP TO DATA SCIENCE: TEACHING PROBABILITY AND STATISTICS	
2	PLEASE READ THE 2ND CHAPTER OF THE ACTIVITY-BASED PROBABILITY AND STATISTICS TEACHING BOOK.		FOR THE RELEVANT SECTION, NARRATIVE METHOD, DISCUSSION METHOD, QUESTION AND ANSWER AND ACTIVITY-BASED EXPLANATION WILL BE USED.	BASIC CONCEPTS OF PROBABILITY AND THEIR TEACHING	
3	PLEASE READ THE 3RD CHAPTER OF THE ACTIVITY-BASED PROBABILITY AND STATISTICS TEACHING BOOK.		FOR THE RELEVANT SECTION, ACTIVITY-BASED EXPLANATION AND TECHNOLOGY SUPPORTED WILL BE USED.	USE OF SIMULATION IN PROBABILITY TEACHING	

Order	PreparationInfo	Laboratory	TeachingMethods	Theoretical	Practise
4	PLEASE READ THE 4RD CHAPTER OF THE ACTIVITY-BASED PROBABILITY AND STATISTICS TEACHING BOOK.		FOR THE RELEVANT SECTION, ACTIVITY-BASED EXPLANATION AND TECHNOLOGY SUPPORTED WILL BE USED.	TEACHING PROBABILITY DISTRIBUTIONS	
5	PLEASE READ THE 5RD CHAPTER OF THE ACTIVITY-BASED PROBABILITY AND STATISTICS TEACHING BOOK.		FOR THE RELEVANT SECTION, ACTIVITY-BASED EXPLANATION AND TECHNOLOGY SUPPORTED WILL BE USED.	STATISTICAL PROBLEM SOLVING PROCESS, DATA COLLECTION, ANALYSIS	
6	PLEASE READ THE 6RD CHAPTER OF THE ACTIVITY-BASED PROBABILITY AND STATISTICS TEACHING BOOK.		FOR THE RELEVANT SECTION, ACTIVITY-BASED EXPLANATION AND TECHNOLOGY SUPPORTED WILL BE USED.	Distribution concept, frequency distributions	
7	PLEASE READ THE 7RD CHAPTER OF THE ACTIVITY-BASED PROBABILITY AND STATISTICS TEACHING BOOK.		FOR THE RELEVANT SECTION, ACTIVITY-BASED EXPLANATION AND TECHNOLOGY SUPPORTED WILL BE USED.	Teaching measures of central tendency	
9	PLEASE READ CHAPTER 8 OF THE ACTIVITY-BASED PROBABILITY AND STATISTICS TEACHING BOOK.		FOR THE RELEVANT SECTION, NARRATION METHOD, ACTIVITY-BASED NARRATION WILL BE USED.	Teaching measures of central dispersion	
10	By working in groups on the defined learning objective, design a lesson plan and a teaching activity that conforms to the educational model.		Lesson plans aligned with the educational model will be developed, and discussion and group work methods will be used for instruction based on these plans.	Regarding the Teaching of Probability and Statistics included in the Maarif Model: A learning objective is selected, a lesson plan is prepared accordingly, and in the classroom environment, designated groups design and explain activities related to this objective, and necessary feedback is provided.	
11	By working in groups on the defined learning objective, design a lesson plan and a teaching activity that conforms to the educational model.		Lesson plans aligned with the educational model will be developed, and discussion and group work methods will be used for instruction based on these plans.	Regarding the Teaching of Probability and Statistics included in the Maarif Model: A learning objective is selected, a lesson plan is prepared accordingly, and in the classroom environment, designated groups design and explain activities related to this objective, and necessary feedback is provided. Relationship of Probability and Statistics with daily life and other lessons	
12	By working in groups on the defined learning objective, design a lesson plan and a teaching activity that conforms to the educational model.		Lesson plans aligned with the educational model will be developed, and discussion and group work methods will be used for instruction based on these plans.	Regarding the Teaching of Probability and Statistics included in the Maarif Model: A learning objective is selected, a lesson plan is prepared accordingly, and in the classroom environment, designated groups design and explain activities related to this objective, and necessary feedback is provided. Materials that can be used in teaching probability and statistics	
13	By working in groups on the defined learning objective, design a lesson plan and a teaching activity that conforms to the educational model.		Lesson plans aligned with the educational model will be developed, and discussion and group work methods will be used for instruction based on these plans.	Regarding the Teaching of Probability and Statistics included in the Maarif Model: A learning objective is selected, a lesson plan is prepared accordingly, and in the classroom environment, designated groups design and explain activities related to this objective, and necessary feedback is provided. Analyzing student thinking on Probability and Statistics	

Order	PreparationInfo	Laboratory	TeachingMethods	Theoretical	Practise
14	By working in groups on the defined learning objective, design a lesson plan and a teaching activity that conforms to the educational model.		Lesson plans aligned with the educational model will be developed, and discussion and group work methods will be used for instruction based on these plans.	Regarding the Teaching of Probability and Statistics included in the Maarif Model: A learning objective is selected, a lesson plan is prepared accordingly, and in the classroom environment, designated groups design and explain activities related to this objective, and necessary feedback is provided. Technology Assisted Probability and Statistics	
15	By working in groups on the defined learning objective, design a lesson plan and a teaching activity that conforms to the educational model.		Lesson plans aligned with the educational model will be developed, and discussion and group work methods will be used for instruction based on these plans.	Regarding the Teaching of Probability and Statistics included in the Maarif Model: A learning objective is selected, a lesson plan is prepared accordingly, and in the classroom environment, designated groups design and explain activities related to this objective, and necessary feedback is provided. Activities that can be applied in the teaching of probability and statistics	

Workload

Activities	Number	PLEASE SELECT TWO DISTINCT LANGUAGES
Vize	1	1,00
Final	1	1,00
Derse Katılım	14	3,00
Ders Öncesi Bireysel Çalışma	14	2,00
Araştırma Sunumu	14	1,00
Teorik Ders Anlatım	14	1,00
Tartışmalı Ders	14	1,00

Assesments

Activities	Weight (%)
Kısa Sınav (Quiz)	0,00
Ara Sınav	40,00
Proje	0,00
Final	0,00
Laboratuvar Sınavı	0,00
Performans Ödevi	30,00
Sunum	30,00
Seminer	0,00
Sözlü Sınav	0,00
Rapor	0,00
Dönem Ödevi	0,00

Matematik Eğitimi Ana Bilim Dalı / İLKÖĞRETİM MATEMATİK ÖĞRETMENLİĞİ X Learning Outcome Relation

	P.O. 1	P.O. 2	P.O. 3	P.O. 4	P.O. 5	P.O. 6	P.O. 7	P.O. 8	P.O. 9	P.O. 10	P.O. 11	P.O. 12	P.O. 13	P.O. 14	P.O. 15	P.O. 16	P.O. 17	P.O. 18	P.O. 19	P.O. 20	P.O. 21	P.O. 22	P.O. 23	P.O. 24
L.O. 1																								
L.O. 2																								

	P.O. 1	P.O. 2	P.O. 3	P.O. 4	P.O. 5	P.O. 6	P.O. 7	P.O. 8	P.O. 9	P.O. 10	P.O. 11	P.O. 12	P.O. 13	P.O. 14	P.O. 15	P.O. 16	P.O. 17	P.O. 18	P.O. 19	P.O. 20	P.O. 21	P.O. 22	P.O. 23	P.O. 24
L.O. 3																								
L.O. 4																								
L.O. 5																								

Table :

P.O. 1 : Alanı ile ilgili öğretim programları, öğretim strateji, yöntem ve teknikleri ile ölçme ve değerlendirme bilgisine sahiptir.

P.O. 2 : Bilginin doğası kaynağı, sınırları, doğruluğu, güvenirliliği ve geçerliliğinin değerlendirilmesi konusunda bilgi sahibidir.

P.O. 3 : Öğrencilerin ihtiyaçlarını karşılayabilecek düzeyde alanı ile ilgili kavramları ve kavramlar arası ilişkileri açıklar.

P.O. 4 : Türk eğitim sistemi'nin amaç, ilke, vizyon, misyon, yapı ve işleyişini, sınıf yönetimi yaklaşımlarını ve eğitim ile ilgili kavramları konusunda bilgi sahibidir.

P.O. 5 : Öğrencilerin gelişim, öğrenme özellikleri ve güçlükleri ile ilgili bilgi sahibidir.

P.O. 6 : Matematik öğretim programıyla ilgili gelişme ve yenilikleri takip edip öğretme etkinliklerine uyarlar.

P.O. 7 : Matematiksel dili alan derslerinde ve matematik öğrenme ve öğretme sürecini planlarken doğru ve etkili şekilde kullanır.

P.O. 8 : Öğrencilerin gelişim özelliklerini, bireysel farklılıklarını, konu alanının özelliklerini ve kazanımlarını dikkate alarak en uygun öğretim strateji, yöntem ve tekniklerini uygular.

P.O. 9 : Öğrencilerin kazanımlarını farklı yöntemler kullanarak çok yönlü değerlendirir.

P.O. 10 : Matematiğin doğası ve tarihsel gelişimi hakkında bilgi sahibidir.

P.O. 11 : Türkçeyi kurallarına uygun düzgün ve etkili kullanabilme ve öğrencilerle sağlıklı iletişim kurabilme becerisine sahiptir.

P.O. 12 : Matematik ve diğer disiplinlerdeki problemlerle ilgili modellemeler ve çözümler üretir.

P.O. 13 : Farklı ölçme ve değerlendirme yöntem ve tekniklerini kullanır.

P.O. 14 : Bireysel ve grup çalışmalarında sorumluluk alır ve alınan görevi etkin bir şekilde yerine getirir.

P.O. 15 : Kendini bir birey olarak tanır; yaratıcı ve güçlü yönlerini kullanır ve zayıf yönlerini geliştirir.

P.O. 16 : Edindiği bilgi ve becerileri eleştirel bir yaklaşımla değerlendirir.

P.O. 17 : Yaşam boyu öğrenmeye ilişkin olumlu bir tutum geliştirir.

P.O. 18 : Bilgiye ulaşma yollarını etkin bir şekilde kullanır.

P.O. 19 : Toplumsal sorumluluk bilinciyle yaşadığı sosyal çevre için mesleki proje ve etkinlikler planlar ve uygular

P.O. 20 : Bir yabancı dili en az Avrupa Dil portföyü B1 düzeyinde kullanarak alanındaki bilgileri izler ve meslektaşları ile iletişim kurar.

P.O. 21 : Bilgi ve iletişim teknolojilerini etkin bir şekilde kullanır.

P.O. 22 : Demokrasiye, insan haklarına, toplumsal, bilimsel ve mesleki etik değerlere uygun davranır.

P.O. 23 : Milli Eğitim Temel Kanunu'nda ifade edilen ulusal ve evrensel duyarlıkların bilincindedir.

P.O. 24 : Alanı ile ilgili öğretim programları, öğretim strateji, yöntem ve teknikleri ile ölçme ve değerlendirme bilgisine sahiptir.

L.O. 1 : Olasılık ve istatistik ile ilgili kavramların dayandığı temelleri ve öğrenme kuramlarını göz önünde bulundurarak etkili öğrenme için etkinlikler hazırlar.

L.O. 2 : Olasılık ve istatistik ile ilgili kavramları öğrencilerin nasıl algıladıklarını analiz eder.

L.O. 3 : 5-8. sınıf matematik dersi öğretim programında yer alan bir konuda ders planı tasarlar ve uygular.

L.O. 4 : Olasılık ve istatistik öğretimde kullanılan araç-gereç, teknoloji ve materyallerin öğretime katkılarını bilir.

L.O. 5 : Gerçek hayattaki problemleri istatistiksel ve matematiksel tekniklerle tanımlar, formüle eder ve inceler