


KAPITAŁ LUDZKI
NARODOWA STRATEGIA SPÓJNOŚCI

Projekt współfinansowany przez
Unię Europejską w ramach
Europejskiego Funduszu
Społecznego

UNIA EUROPEJSKA
EUROPEJSKI
FUNDUSZ SPOŁECZNY


Nazwa przedmiotu			Kod ECTS
Mathematical Statistics			11.2.0761
Nazwa jednostki prowadzącej przedmiot			
Katedra Statystyki			
Studia			
wydział	kierunek	poziom	pierwszego stopnia
Wydział Zarządzania	Finanse i rachunkowość	forma	stacjonarne
		moduł	Financial Analyst
		specjalnościowy	
		specjalizacja	wszystkie
Nazwisko osoby prowadzącej (osób prowadzących)			
dr Anna Gierusz-Matkowska; mgr Teresa Plenikowska-Ślusarz			
Formy zajęć, sposób ich realizacji i przypisana im liczba godzin			Liczba punktów ECTS
Formy zajęć			5 15 hours of lecture participation(1 ECTS), 30 hours of class participation (2 ECTS), 30 hours tests preparation (1 ECTS), 30 hours of homework (1 ECTS)
Wykład, Ćw. audytoryjne			
Sposób realizacji zajęć			
zajęcia w sali dydaktycznej			
Liczba godzin			
Wykład: 15 godz., Ćw. audytoryjne: 30 godz.			
Termin realizacji przedmiotu			
2024/2025 zimowy			
Status przedmiotu		Język wykładowy	
obowiązkowy		angielski	
Metody dydaktyczne		Forma i sposób zaliczenia oraz podstawowe kryteria oceny lub wymagania egzaminacyjne	
- Rozwiązywanie zadań - Wykład z prezentacją multimedialną		Sposób zaliczenia	
		- Zaliczenie na ocenę - Zaliczenie (zal)	
		Formy zaliczenia	
		kolokwium	
		Podstawowe kryteria oceny	
		Mid-term and end of term tests. Need to pass both. Mark: 51%-60% "3"; 61%-70% "3+"; 71%-80% "4"; 81%-90% "4+"; 91%-100% "5"	
Sposób weryfikacji założonych efektów uczenia się			

zakładany efekt kształcenia		Kolokiwum
	Wiedza	
FiR_W06		+
	Umiejętności	
FiR_U07		+
	Kompetencje	
FiR_K01		+
FiR_K05		+

Określenie przedmiotów wprowadzających wraz z wymogami wstępnymi**A. Wymagania formalne**

Descriptive statistics
Probability concepts

B. Wymagania wstępne

Descriptive measures
Random variables and their probability distributions

Cele kształcenia

Learn basic methods of statistical inference. Learn how to estimate population parameters, how to calculate and interpret confidence intervals, perform hypothesis testing.

Treści programowe

Simple random sampling and a sampling distribution; sampling error; stratified random sampling. Central limit theorem. Properties of estimators. Point estimation and interval estimation of population parameters. Selecting sample size, bias. Steps of hypothesis testing, null and alternative hypotheses; one- tailed and two- tailed tests of hypotheses. Test statistic, Type I and Type II errors, a significance level, a decision rule, the power of a test, p-value. Parametric tests: population mean, two population means, variance, two variances. Selected non-parametric tests.

Wykaz literatury

1. Richard A. DeFusco, Dennis W. McLeavey, Jerald E. Pinto, David E. Runkle, Mark J. P. Anson, Quantitative Investment Analysis, 3rd Edition, Wiley and Sons 2016
2. Ken Black, Applied Business Statistics: Making Better business Decision, John Wiley and Sons 2011
3. Richard A. Johnson, Gouri K. Bhattacharyya, Statistics: Principles and Methods, John Wiley and Sons, 2011
4. David Ray Anderson, Dennis J. Sweeney, Thomas Arthur Williams, Thomas A. Williams, Statistics for business and economics, Cengage Learning, 2010
5. A. Aczel, J. Sounderpandian Complete Business Statistics with Student CD, The McGraw-Hill/Irwin Series 2009
6. W. Mendenhall, D.D. Wackerly, Mathematical Statistics with Applications, Thomson Learning (7th edition), 2007;
7. J.E. Freund, R.E. Walpole, Mathematical Statistics, Prentice-Hall, (4th edition), 1987.

Kierunkowe efekty uczenia się

Student should be able to:

- define simple random sampling and a sampling distribution;
- explain sampling error;
- distinguish between simple random and stratified random sampling;
- distinguish between time- series and cross- sectional data;
- explain the central limit theorem and its importance;
- calculate and interpret the standard error of the sample mean;
- identify and describe desirable properties of an estimator;
- distinguish between a point estimate and a confidence interval estimate of a population parameter;

Wiedza

FiR1_W06

The student has advanced knowledge of methods and tools, including data acquisition and analysis techniques, appropriate to management and quality studies, which allows for the description of economic structures and institutions and the processes within and between them, in particular methods of statistical inference

Umiejętności

FiR1_U07

The student analyses the proposed solutions to problems in the disciplines of management and quality studies and finance and accounting, can present their advantages and disadvantages, and suggests appropriate solutions, in particular related to statistical inference

Kompetencje społeczne (postawy)

FiR1_K01

Self-development:

- describe properties of Student's t-distribution and calculate and interpret its degrees of freedom;
- calculate and interpret a confidence interval for a population mean, given a normal distribution with 1) a known population variance, 2) an unknown population variance, or 3) an unknown variance and a large sample size;
- describe the issues regarding selection of the appropriate sample size, data-mining bias, sample selection bias, survivorship bias, look-ahead bias, and time-period bias.
- define a hypothesis, describe the steps of hypothesis testing, and describe and interpret the choice of the null and alternative hypotheses;
- distinguish between one-tailed and two-tailed tests of hypotheses;
- explain a test statistic, Type I and Type II errors, a significance level, and how significance levels are used in hypothesis testing;
- explain a decision rule, the power of a test, and the relation between confidence intervals and hypothesis tests;
- distinguish between a statistical result and an economically meaningful result;
- explain and interpret the p-value as it relates to hypothesis testing;
- identify the appropriate test statistic and interpret the results for a hypothesis test concerning the population mean of both large and small samples when the population is normally or approximately distributed and the variance is 1) known or 2) unknown;
- identify the appropriate test statistic and interpret the results for a hypothesis test concerning the equality of the population means of two at least approximately normally distributed populations, based on independent random samples with 1) equal or 2) unequal assumed variances;
- identify the appropriate test statistic and interpret the results for a hypothesis test concerning the mean difference of two normally distributed populations;
- identify the appropriate test statistic and interpret the results for a hypothesis test concerning 1) the variance of a normally distributed population, and 2) the equality of the variances of two normally distributed populations based on two independent random samples;
- distinguish between parametric and nonparametric tests and describe situations in which the use of nonparametric tests may be appropriate.

- the student understands the need for development and lifelong learning
- can supplement and improve the acquired knowledge and skills
- knows his/her strengths and weaknesses, sets ambitious goals to the best of his/her ability,
- knows how to accept failure and admit mistakes

in relation to statistical inference concepts

FiR_K05

Responsibility:

- the student meets deadlines,
- can set priorities appropriately to complete the task set before him/her,
- consistently strives to achieve the set goal,
- can work systematically and independently,
- observes the rules and norms of social coexistence

using statistical inference methods

Kontakt

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