**Module title**
Stochastics for students teaching at a German Gymnasium

**Abbreviation**
10-M-STL-092-m01

**Module coordinator**
Dean of Studies Mathematik (Mathematics)

**Module offered by**
Institute of Mathematics

**ECTS**
9

**Method of grading**
numerical grade

**Duration**
1 semester

**Module level**
undergraduate

**Other prerequisites**
Certain prerequisites must be met to qualify for admission to assessment. The lecturer will inform students about the respective details at the beginning of the course. Registration for the course will be considered a declaration of will to seek admission to assessment. If students have obtained the qualification for admission to assessment over the course of the semester, the lecturer will put their registration for assessment into effect. Students who meet all prerequisites will be admitted to assessment in the current or in the subsequent semester. For assessment at a later date, students will have to obtain the qualification for admission to assessment anew.

**Contents**
Discrete statistics, in particular stochastic modelling, motivation of conceptualisation and discussion of basic assumptions: basic notions of descriptive statistics, discrete probability spaces, random variables, important discrete distributions, elements of combinatorics, principle of inclusion and exclusion, multistage experiments, conditional probability, stochastic independence, common distributions, expected value and variance, covariance and correlation, waiting time problems, law of the large numbers, central limit theorem, confidence intervals and statistical tests in binomial models, stochastic paradoxes.

**Intended learning outcomes**
The student is acquainted with fundamental concepts and methods of stochastics, as required for teaching at German Gymnasium. He/She is able to assess stochastic phenomena correctly and handle the concept of statistical significance.

**Courses**
V + Ü (no information on SWS (weekly contact hours) and course language available)

**Method of assessment**
written examination (approx. 90 minutes); if announced by the lecturer, the written examination can be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups (groups of 2, approx. 30 minutes)
Language of assessment: German, English if agreed upon with the examiner

**Allocation of places**
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**Additional information**
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**Referred to in LPO I**
(examination regulations for teaching-degree programmes)
§ 73 (1) 3. Mathematik Stochastik

**Module appears in**
First state examination for the teaching degree Gymnasium Mathematics (2009)