



STUDIJŲ KOKYBĖS VERTINIMO CENTRAS

VILNIUS UNIVERSITETAS

STUDIJŲ PROGRAMOS *FINANSŲ IR DRAUDIMO*

*MATEMATIKA* (62401P108, 621G17001)

VERTINIMO IŠVADOS

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**EVALUATION REPORT**  
**OF *FINANCIAL AND INSURANCE MATHEMATICS* (62401P108,**  
**621G17001) STUDY PROGRAMME**  
**at VILNIUS UNIVERSITY**

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## DUOMENYS APIE ĮVERTINTĄ PROGRAMĄ

Studijų programos pavadinimas	<i>Finansų ir draudimo matematika</i>
Valstybiniai kodai	62401P108, 621G17001
Studijų sritis	fiziniai mokslai
Studijų kryptis	matematika
Studijų programos rūšis	magistrantūros studijos
Studijų pakopa	antroji
Studijų forma (trukmė metais)	nuolatinė (2)
Studijų programos apimtis kreditais <sup>1</sup>	60
Suteikiamas laipsnis ir (ar) profesinė kvalifikacija	Matematikos magistras
Studijų programos įregistravimo data	01-09-2008

<sup>1</sup> – vienas kreditas laikomas lygiu 40 studento darbo valandų

## INFORMATION ON EVALUATED STUDY PROGRAMME

Name of the study programme	<i>Financial and Insurance Mathematics</i>
State code	62401P108, 621G17001
Study area	Physical Sciences
Study field	Mathematics
Kind of the study programme	Master studies
Level of studies	Second
Study mode (length in years)	Full-time (1.5)
Scope of the study programme in national credits <sup>1</sup>	60
Degree and (or) professional qualifications awarded	Master of Mathematics
Date of registration of the study programme	01-09-2008

<sup>1</sup> – one credit is equal to 40 hours of student work

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Centre for Quality Assessment in Higher Education

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## I. INTRODUCTION

The Lithuanian Centre for Quality Assessment in Higher Education has invited four university experts (hereinafter called Expert Team) from Estonia, Latvia, Lithuania and Norway to review and assess the Master level study programme *Financial and Insurance Mathematics* (61201P108) at the Vilnius University (VU). The study programme under evaluation is directed by two departments of the Faculty of Mathematics and Informatics: Department of Mathematical Analysis and Department of Econometrical Analysis.

The Expert Team visited the Faculty on November 23-24.

On November 23, the Expert Team met the administrative staff of the Faculty represented by the Dean, Prof. G. Stepanauskas, and three Vice-Deans. On November 24, at the meeting with staff members (4) responsible for preparation of the Self-assessment report the Expert Team was given answers to the questions concerning less covered in the Self-assessment report issues. After that a meeting with teaching staff members (10) took place.

The Expert Team had possibility to observe various study support services (classrooms, computer services, library), as well as to familiarize with students' final works.

The Expert Team conducted also interviews with some students (on November 24). The group consisted of around 60 students (predominantly, 1st year students). However, students from the evaluated study programme were also presented. The Expert Team was familiarized with students' attitude towards the study programme. The meeting was carried out in an active and constructive atmosphere. The students expressed positive as well as critical opinions about the programme.

Finally, the Expert Team met graduates (6) and potential future employers (5) of the students. They expressed positive attitude about the study programme. At the conclusion of the visit, the Expert Team conducted a meeting with staff of the Faculty and highlighted some strengths and weaknesses of the programme.

In the following, the findings of the Expert Team are outlined. The Self-assessment report submitted by the Faculty, the observations made at the time of the visit, and the supplementary material received during the visit form the basis of these assessments.

## II. PROGRAMME ANALYSIS

### *1. Programme aims and learning outcomes*

#### **1.1. Programme demand, purpose and aims**

##### *1.1.1. Uniqueness and rationale of the need for the programme*

Uniqueness and rationale of the need for the programme is adequate. Demand for the specialists in the labour market is comprehensively analysed in the Self-assessment report. The study programme is developed based on recognition of both higher education trends and global and local market changes, and is focused on preparing qualified specialists to satisfy job market demands.

Demand for this study programme among applicants is quite high. It allows the Faculty to admit well-prepared and motivated students.

The position of the programme among other study programmes is rather strong. The programme is very young but definitely needed for the country to educate specialists for financial and actuarial mathematics, and on such a level this programme is the only one in Lithuania.

##### *1.1.2. Conformity of the programme purpose with institutional, state and international directives*

As convincingly explained in the self-assessment report, there exist direct correlation of programme purpose with the mission and the development strategy of the VU. The study programme is prepared in accordance with the directives regulating studies.

### *1.1.3. Relevance of the programme aims*

The purpose of the study programme *Financial and Insurance Mathematics* is compatible with the mission of Vilnius University, moreover research in the field of Mathematics is one of scientific priorities in Lithuania. Furthermore, this programme is well related to international standards and certification requirements.

## **1.2. Learning outcomes of the programme**

### *1.2.1. Comprehensibility and attainability of the learning outcomes*

The comprehensibility and attainability of the learning outcomes are evident. The content of learning outcomes is relevant as well as level of their complexity.

### *1.2.2. Consistency of the learning outcomes*

Consistency of the learning outcomes of the study programme is good. Learning outcomes at the programme and subject levels are described clearly. Correlation of learning outcomes of the programme with those at of the subject level is not outlined explicitly, but relation of the purpose and aims of the programme to learning outcomes at the programme level is outlined. However it is not clear how the programme supports development of teamwork skills (that is mentioned as one of the aims (item 20 in the Self-assessment report)).

### *1.2.3. Transformation of the learning outcomes*

Transformation of the learning outcomes is not considered in the Self-assessment report due to the fact (as explained in the report) that the first group was graduated only in January 2010. The assessment of learning outcomes and reasonable renewal of learning outcomes is planned after survey of graduates and their employers. The department has developed and implemented a special requirements management system for iterative analysis and improvement of study programmes.

## **2. Curriculum design**

### **2.1. Programme structure**

#### *2.1.1. Sufficiency of the study volume*

The study volume is sufficient and seems to be in compliance with the requirements of legal acts, with some exceptions: during the first and second semesters students have 8 compulsory courses and have to select 3 elective courses (11 courses, while according to the regulation there should be no more than 10 subjects per year - that is maximum 5 subjects per semester).

No doubt, there exists full compliance of the study volume with learning outcomes.

#### *2.1.2. Consistency of the study subjects*

Relations and sequences of the study subjects are acceptable. Proportion of compulsory, elective and free-choice subjects is reasonable. The compulsory subjects constitute the majority of the study programme subjects. The study volume of elective subjects is 9-10 credits (3 elective subjects out of 5). However, free-choice subjects are completely absent.

### **2.2. Programme content**

#### *2.2.1. Compliance of the contents of the studies with legal acts*

The Expert Team is not aware of any deviations of the study programme from the standards and legislation of the Republic of Lithuania (concerning compliance of the programme content with regulations for study field and compliance of the programme content with general requirements for the study programmes).

#### *2.2.2. Comprehensiveness and rationality of programme content*

Forms and methods used in classes are acceptable. Comprehensiveness and rationality of the study programme content is good.

### **3. Staff**

#### **3.1. Staff composition and turnover**

##### *3.1.1. Rationality of the staff composition*

Rationality of the staff composition is very good, including qualification of teachers, ratio between teachers and students, ratio of full-time and visiting/invited teachers, distribution of teachers' workload. The number of technical staff is not elaborated in the Self-assessment report. Generally, the staff members have very high qualification.

##### *3.1.2. Turnover of teachers*

There were no changes in the staff involved in the program during the assignment period of time.

#### **3.2. Staff competence**

##### *3.2.1. Compliance of staff experience with the study programme*

Qualification of the academic staff, thoroughly described in the Self-assessment report, is sufficient for achieving aims and learning outcomes identified for the programme. Teachers' other activities (expertise, organizational) correlate well with the programme. The chairman of the programme, prof. V. Paulauskas is a highly experienced scientific and educational project manager, as well as profound lecturer and active researcher.

##### *3.2.2. Consistency of teachers' professional development*

As explained in the self-assessment report, the scope of the teachers' professional development during the last years is impressive and has definitely a very positive impact.

Distribution of teachers' workload in teaching, research and other activities is regulated properly. However, no regular sabbatical leaves are planned for teachers. The amount of teachers' contact-hours needs to be further decreased enabling to let at least 1/3 of time for their research activities.

### **4. Facilities and learning resources**

#### **4.1. Facilities**

##### *4.1.1. Sufficiency and suitability of premises for studies*

There is a sufficient number of lecture rooms and computer classes for both implementing the study programme and performing individual assignments (the total workspace equals 13,725 square meters). Delivering lectures (on the same day) in one building is worthy to be praised. Technical (safety) and hygiene conditions of the premises meet the prescribed requirements and norms. Working places and working conditions (in particular, opening hours) in libraries (reading rooms) for maintaining high-level studies are quite good.

#### *4.1.2. Suitability and sufficiency of equipment for studies*

Information Technology Centre has 14 computer laboratories with 157 PC and 3 classes with 30 PC. Keeping in mind that their average occupation is somewhere 70 %, we conclude that conditions for the implementation of the study programme are good enough. The computer hardware and software are up-to-date (three operating platforms; new computers – Barclays Bank support)) and legal.

### **4.2. Learning resources**

#### *4.2.1. Suitability and accessibility of books, textbooks and periodical publications*

Provision with printed publications required for the study programme is satisfactory. The library contains 60 thousand books and journals on mathematics (the main part), statistics, computer science, economics, etc. The library updates (at the request of teachers or students) its funds and provides a range of services in cooperation with the Central Library (Vilnius) and the Academy of Sciences Library. Access to electronic databases through personal Internet connection is available.

#### *4.2.2. Suitability and accessibility of learning materials*

Students have good access to existing methodological publications. Provision of students with methodological publications and learning aids is satisfactory.

### **5. Study process and student assessment**

#### **5.1. Student admission**

##### *5.1.1. Rationality of requirements for admission to the studies*

Admission to the study programme is organized according to the legal acts and regulations. Refined rules are used to build contest marks and make decisions.

##### *5.1.2. Efficiency of enhancing the motivation of applicants and new students*

According to the Self-assessment report, motivation enhancement of future and new students is efficient. Measures are taken to enhance efficiency of the motivation of applicants and new students. A number of actions are carried out in attracting students capable to study, including different marketing measures in order to reach the potential entrants to the programme. The communication of information about the study, programme using all relevant channels, is set up.

#### **5.2. Study process**

##### *5.2.1. Rationality of the programme schedule*

Schedule of the study classes is excellent and all-around supportive for students. Teaching process and timetables are organized in such a way that students have an opportunity to combine their studies and jobs. Schedule of the examination session is good.

##### *5.2.2. Student academic performance*

Monitoring of student progress and drop-out rate takes place. However, the effectiveness and impact of such monitoring is not clear. Students' participation in research comes from working on final projects - most of the final theses involve scientific research elements.

##### *5.2.3. Mobility of teachers and students*

Scope of teachers (outgoing) and students (outgoing) mobility takes place, but appears to be rather low. It should be enhanced to gain further positive impact on the programme and studies.

### **5.3. Student support**

#### *5.3.1. Usefulness of academic support*

Students are informed about the study programme and its changes. Student counselling on study issues is good. Student counselling on career possibilities could be more intensive. Possibilities to study according to individual programme exist. Possibilities of students to repeat subjects and to retake examinations are regulated properly.

#### *5.3.2. Efficiency of social support*

As for psychological, sports, health and cultural support, the students in this study programme get aid equally with the rest of the students of the university. The support can be evaluated as good. The regulations about employment opportunities, social security and financial support are common for both undergraduates and graduates.

### **5.4. Student achievement assessment**

#### *5.4.1. Suitability of assessment criteria and their publicity*

Student's knowledge assessment criteria are based on the learning outcomes of a particular study subject. The composition of final examination grades follows accumulative principle (attendance, seminars, mid-term tests, etc.).

#### *5.4.2. Feedback efficiency*

It seems that there will be significant positive changes in ensuring feedback efficiency, because of the new approach developed by the quality management system of Vilnius University.

#### *5.4.3. Efficiency of final thesis assessment*

Requirements for final thesis exist. Procedure of final thesis assessment is regulated and performed correctly. Results of final thesis assessment correspond to the level of quality of the final thesis. The topics of final theses are in compliance with learning outcomes.

#### *5.4.4. Functionality of the system for assessment and recognition of achievements acquired in non-formal and self-education*

Neither non-formal nor self-education studies are recognized.

### **5.5. Graduates placement**

#### *5.5.1. Expediency of graduate placement*

Only unofficial data about placement and employment characteristics of graduates from this programme is available.

## **6. Programme management**

### **6.1. Programme administration**

#### *6.1.1. Efficiency of the programme management activities*

Efficiency of management activities is good. Head of the Department prof. V. Paulauskas is directly responsible for the study programme implementation and administration and acts as the coordinator of the programme. All essential (long-term) decisions, changes of the programme



and study process regulations, are collegial and are discussed in regular meetings where (if necessary) the students' representatives are also invited.

## **6.2. Internal quality assurance**

### *6.2.1. Suitability of the programme quality evaluation*

In the self-assessment report, the structure and functions of internal self-assessment procedure are described.

### *6.2.2. Efficiency of the programme quality improvement*

Data about students' opinion on quality of studies and objectivity of assessments are collected and efficiently used.

### *6.2.3. Efficiency of stakeholders participation*

External stakeholders are involved, but their influence on the programme quality improvement is not so clear.

## **III. RECOMMENDATIONS**

1. According to regulation, there should be no more than 10 courses per year. However, according to Self-assessment report (item 24 in the Self-assessment report), during the very first year students have to take 11 courses. The study programme must comply with legal acts.
2. A system for feedback from students during academic year should be established at the department/faculty level, and visibility of taken actions should be made available to students.
3. Possibilities to take elective courses are limited. More flexibility via individual study plans should be implemented.
4. It is recommended to include into the study programme brief courses on distinct data analysis tools (SAS, SPSS etc.), which are often used in practice.
5. A system for staff professional development and promotion should be formalized (e. g. possibilities for sabbatical leave, etc.).
6. Mobility of students should be increased (more bilateral agreements with universities giving courses in English are needed).
7. Some business-oriented subjects should be added to the curriculum (may be as electives).

#### IV. GENERAL ASSESSMENT

The study programme *Mathematics* (state code – (62401P108) is given positive evaluation.

Table. *Study programme assessment in points by evaluation areas.*

No.	Evaluation area	Assessment in points*
1	Programme aims and learning outcomes	3
2	Curriculum design	3
3	Staff	4
4	Facilities and learning resources	3
5	Study process and student assessment (student admission, student support, student achievement assessment)	3
6	Programme management (programme administration, internal quality assurance)	3
	<b>Total:</b>	19

\*1 (unsatisfactory) - there are essential shortcomings that must be eliminated

2 (poor) - meets the established minimum requirements, needs improvement

3 (good) - the area develops systematically, has distinctive features

4 (very good) - the area is exceptionally good

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Grupēs nariai:

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