

Field of study: **MATEMATYKA (MATHEMATICS)**

Profile of study: General academic

degree studies: I

Mode of study: Full-time programme

Speciality: **Financial Mathematics**

For a year 2019/2020

| YEAR                                 | SEMESTER                          | COURSES                                     | Course details |          |                      |               |                        |                          |                         | Form of assessment | ECTS |
|--------------------------------------|-----------------------------------|---|----------------|----------|----------------------|---------------|------------------------|--------------------------|-------------------------|--------------------|------|
|                                      |                                   |   | CODE           | Hours    |                      |               |                        |                          | Total                   |                    |      |
|                                      |                                   |   |                | Lectures | Tutorials / Seminars | Computer labs | Apprenticeship, others |                          |                         |                    |      |
| I                                    | 1                                 | Introduction to Mathematics                 | AA0LEM         |          | 28                   |               |                        |                          | 28                      | Z                  | 2    |
|                                      | 1                                 | Logic and Set Theory                        | LM0LEM         | 28       | 28                   |               |                        |                          | 56                      | E                  | 6    |
|                                      | 1                                 | Mathematical Analysis 1                     | AM1LEM         | 42       | 42                   |               |                        |                          | 84                      | E                  | 8    |
|                                      | 1                                 | Linear Algebra with Geometry 1              | AG1LEM         | 42       | 42                   |               |                        |                          | 84                      | E                  | 7    |
|                                      | 1                                 | Application Software                        | AS0ENG         |          |                      | 28            |                        |                          | 28                      | Z                  | 2    |
|                                      | 1                                 | Mathematics of Banking                      | BM0LEM         | 28       | 28                   |               |                        |                          | 56                      | Z                  | 6    |
|                                      | <b>Semester 1 total:</b>          |   |                |          |                      |               |                        |                          | <b>Hours: 336</b>       | <b>p. ECTS: 31</b> |      |
|                                      | 2                                 | Mathematical Analysis 2                     | AM2LEM         | 42       | 42                   |               |                        |                          | 84                      | E                  | 10   |
|                                      | 2                                 | Linear Algebra with Geometry 2              | AG2LEM         | 42       | 28                   |               |                        |                          | 70                      | E                  | 8    |
|                                      | 2                                 | Elements of Discrete Mathematics            | ED0LEM         |          | 28                   |               |                        |                          | 28                      | Z                  | 3    |
|                                      | 2                                 | Introduction to Programming                 | PO0LEM         |          |                      | 28            |                        |                          | 28                      | Z                  | 3    |
|                                      | 2                                 | Elements of Descriptive Statistics          | ES0LEM         | 14       |                      | 14            |                        |                          | 28                      | Z                  | 2    |
|                                      | 2                                 | Introduction to Insurance                   | WU0LEM         | 28       |                      |               |                        |                          | 28                      | Z                  | 2    |
|                                      | 2                                 | Classes from group I                        |                | 28       |                      |               |                        |                          | 28                      | Z                  | 2    |
| <b>Semester 2 total:</b>             |                                   |   |                |          |                      |               |                        | <b>Hours: 294</b>        | <b>p. ECTS: 30</b>      |                    |      |
| II                                   | 3                                 | Mathematical Analysis 3                     | AM3LEM         | 24       | 28                   |               |                        |                          | 52                      | Z                  | 5    |
|                                      | 3                                 | Probability Theory 1                        | RP1LEM         | 24       | 28                   |               |                        |                          | 52                      | E                  | 5    |
|                                      | 3                                 | Introduction to Measure and Integral Theory | TC0LEM         |          | 14                   |               |                        |                          | 14                      | Z                  | 1    |
|                                      | 3                                 | Financial Instruments                       | IF0LEM         | 14       | 28                   |               |                        |                          | 42                      | Z                  | 4    |
|                                      | 3                                 | Classes from group S                        |                | 7        |                      |               |                        |                          | 7                       | Z                  | 1    |
|                                      | 3                                 | Classes from group III                      |                |          | 42                   |               |                        |                          | 42                      | Z/E                | 4    |
|                                      | 3                                 | Classes from group IV                       |                | min      | 42                   |               |                        |                          | 42                      | Z/E                | 5    |
|                                      | 3                                 | Electives                                   |                | min      | 20                   |               |                        |                          | 20                      | Z                  | 5    |
|                                      | 3                                 | Physical Education 1                        | PE1ENG         |          |                      |               | 30                     |                          | 30                      | Z                  | 0    |
|                                      | <b>Semester 3 total:</b>          |   |                |          |                      |               |                        |                          | <b>Hours (min): 301</b> | <b>p. ECTS: 30</b> |      |
|                                      | 4                                 | Mathematical Analysis 4                     | AM4LEM         | 28       | 28                   |               |                        |                          | 56                      | E                  | 6    |
|                                      | 4                                 | Differential Equations                      | RR0LEM         | 28       | 28                   |               |                        |                          | 56                      | E                  | 6    |
|                                      | 4                                 | Probability Theory 2                        | RP2LEM         | 28       | 28                   |               |                        |                          | 56                      | E                  | 6    |
|                                      | 4                                 | Portfolio Analysis                          | AP0LEM         | 28       |                      | 28            |                        |                          | 56                      | E                  | 5    |
| 4                                    | Pricing in Discrete Market Models | DR0LEM                                      | 28             | 28       |                      |               |                        | 56                       | Z                       | 5                  |      |
| 4                                    | Classes from group I              |   | 28             |          |                      |               |                        | 28                       | Z                       | 2                  |      |
| 4                                    | Physical Education 2              | PE2ENG                                      |                |          |                      | 30            |                        | 30                       | Z                       | 0                  |      |
| <b>Semester 4 total:</b>             |                                   |   |                |          |                      |               |                        | <b>Hours (min): 338</b>  | <b>p. ECTS: 30</b>      |                    |      |
| III                                  | 5                                 | Bachelor Seminar 1 and Preparation for BAP  | SS1ELM-*       |          | 28                   |               |                        |                          | 28                      | Z                  | 3    |
|                                      | 5                                 | Introduction to Stochastic Processes        | WP0LEM         | 28       | 28                   |               |                        |                          | 56                      | Z                  | 5    |
|                                      | 5                                 | Statistics                                  | ST0LEM         | 28       | 28                   |               |                        |                          | 56                      | E                  | 6    |
|                                      | 5                                 | Computer Aided Calculations (M)             | KW0LEM         |          |                      | 28            |                        |                          | 28                      | Z                  | 2    |
|                                      | 5                                 | Classes from group II                       |                | 7        |                      |               |                        |                          | 7                       | Z                  | 1    |
|                                      | 5                                 | Classes from group III                      |                |          | 42                   |               |                        |                          | 42                      | Z/E                | 4    |
|                                      | 5                                 | Classes from group IV                       |                | min      | 42                   |               |                        |                          | 42                      | Z/E                | 5    |
|                                      | 5                                 | Electives                                   |                | min      | 20                   |               |                        |                          | 20                      | Z/E                | 5    |
|                                      | <b>Semester 5 total:</b>          |   |                |          |                      |               |                        |                          | <b>Hours (min): 279</b> | <b>p. ECTS: 31</b> |      |
|                                      | 6                                 | Bachelor Seminar 2 and Preparation for BAP  | SS2ELM-*       |          | 28                   |               |                        |                          | 28                      | Z                  | 9    |
|                                      | 6                                 | Financial engineering                       | FE0LEM         | 28       |                      | 28            |                        |                          | 56                      | Z                  | 5    |
|                                      | 6                                 | Team Project                                | PZ0LEM         |          | 14                   |               |                        |                          | 14                      | Z                  | 2    |
|                                      | 6                                 | Apprenticeship                              | OZ0LEM         |          |                      |               | 120                    |                          | 120                     | Z                  | 4    |
|                                      | 6                                 | Risk of Financial Investments               | RF00LEM        | 28       | 28                   |               |                        |                          | 56                      | E                  | 5    |
| 6                                    | Non-Life Insurance                | UM0LEM                                      | 28             | 28       |                      |               |                        | 56                       | E                       | 5                  |      |
| <b>Semester 6 total:</b>             |                                   |   |                |          |                      |               |                        | <b>Hours (min): 330</b>  | <b>p. ECTS: 30</b>      |                    |      |
| <b>TOTAL THROUGHOUT THE STUDIES:</b> |                                   |   |                |          |                      |               |                        | <b>Hours (min): 1878</b> | <b>p. ECTS: 182</b>     |                    |      |

Classes from group:

|     |       |                                       |        |    |    |    |  |    |   |   |
|-----|-------|---------------------------------------|--------|----|----|----|--|----|---|---|
| I   | 2 / 4 | Capital Market                        | RKOLEM | 28 |    |    |  | 28 | Z | 2 |
|     | 4 / 2 | Macroeconomics                        | MKOLEM | 28 |    |    |  | 28 | Z | 2 |
| II  | 3 / 5 | e.g. Intellectual Property Protection | QIOLEM | 7  |    |    |  | 7  | Z | 1 |
|     | 5 / 3 | e.g. Fundamentals of Entrepreneurship | PPOLEM | 7  |    |    |  | 7  | Z | 1 |
| III | 3 / 5 | Algebra                               | ALOLEM | 22 | 22 |    |  | 44 | E | 4 |
|     | 5 / 3 | Introduction to Topology              | TOOLEM | 20 | 28 |    |  | 48 | Z | 4 |
| IV  | 3 / 5 | Foundations of Databases (M)          | BDOLEM | 28 |    | 28 |  | 56 | Z | 5 |
|     | 5 / 3 | Microeconomics                        | MIOLEM | 28 | 14 |    |  | 42 | E | 5 |

*Study programme approved by the Council of the Faculty of Mathematics and Computer Science on 15.05.2019*

Mandatory courses not included in the study programme:

- Health and Safety Training on the e-learning platform,
- Copyright Training on the e-learning platform.

IV semester - the meeting at which the topics of the proposed diploma thesis will be presented