## General Information:

<table>
<thead>
<tr>
<th>Module number:</th>
<th>MA9972</th>
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<tbody>
<tr>
<td>Title (dt.):</td>
<td>Zeitdiskrete Finanzmathematik (FIM)</td>
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<tr>
<td>Title (en.):</td>
<td>Discrete Time Finance (FIM)</td>
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<tr>
<td>Module level:</td>
<td>MSc</td>
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<tr>
<td>Abbreviation:</td>
<td>DTF</td>
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<tr>
<td>Duration:</td>
<td>One semester</td>
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<tr>
<td>Occurrence - summer/winter:</td>
<td>Winter</td>
</tr>
<tr>
<td>Occurrence - regular/irregular:</td>
<td>Regular</td>
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<tr>
<td>Language:</td>
<td>German/English</td>
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<tr>
<td>Credits:</td>
<td>4</td>
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<tr>
<td>Specialization:</td>
<td></td>
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<tr>
<td>Date:</td>
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<td>Location:</td>
<td>TUM</td>
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<td>FIM-exclusivity:</td>
<td>Yes</td>
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## Workload:

| Contact hours: | 45 |
| Self-study hours: | 75 |
| Total hours: | 120 |

## Achievement and assessment methods:

### Description of achievement and assessment methods:
The module examination is based on a written exam. By answering questions in text form, students have to show their understanding of the concepts of discrete-time mathematical modeling of financial markets and their capability to apply these concepts. They have to analyze mathematical models of financial markets and solve given problems. Students have to determine whether markets contain arbitrage, replicate and price given financial derivatives and develop hedging strategies. The questions may include mathematical proofs and calculations.

### Type of assessment:
- Written

### Duration of assessment (min):
- 60 - 90 min

### Assessment retake:
- (Recommended) prerequisites

## Description:

### Content:
Intended learning outcomes: At the end of the module students are able to understand the fundamentals of mathematical finance in discrete time. They will understand the principles of arbitrage theory and will be able to price financial derivatives as well as hedge against their risk in single- and multi-period financial market models.

Teaching and learning methods: Lectures with beamer presentation and mathematical proofs on the blackboard, exercise sheets with problems for preparation in homework, tutorials for discussion of solutions to exercise sheets

Media: presentation slides, white board

Reading list:
- J.C. Hull: „Optionen, Futures, und andere Derivative“, Pearson Studium, 2006

Responsible for module:
First name: Rudi, Prof. Dr.
Name: Zagst
Email: zagst@tum.de

Lecturer:
1. Lecturer:
First name: Rudi, Prof. Dr.
Name: Zagst
Email: zagst@tum.de

2. Lecturer:
First name: Markus
Name: Wahl
Email: markus.wahl@tum.de

Courses:
1. Course:
   Type: Lecture
   Name: Discrete Time Finance
   Weekly hours per semester: 2

2. Course:
   Type: Exercises
   Name: Discrete Time Finance
   Weekly hours per semester: 1
(Recommended) audience:

1. Program: Name: MSc Finance & Information Management (FIM)

2. Program: Name: 

3. Program: Name: 

4. Program: Name: 

5. Program: Name: 