

## Module Description

### MA4711: Credit Derivatives

TUM Department of Mathematics

<b>Module Level:</b> Master	<b>Language:</b> English	<b>Duration:</b> one semester	<b>Frequency:</b> irregularly
<b>Credits:*</b> 5	<b>Total Hours:</b> 150	<b>Self-study Hours:</b> 105	<b>Contact Hours:</b> 45

Number of credits may vary according to degree program. Please see Transcript of Records.

#### Description of Examination Method:

Klausur oder mündliche Prüfung (abhängig von der Teilnehmerzahl)

<b>Type of Examination:</b> written or oral	<b>Duration of Examination (min.):</b> 60 (schriftlich) oder 30 (mündlich)	<b>Repeat Examination:</b> End of Semester
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#### (Recommended) Prerequisites:

MA2409 Probability Theory, MA3702 Continuous Time Finance

#### Content:

This lecture provides the theoretical foundation for the pricing of credit derivatives. For the valuation of univariate products, various specifications of so-called structural models are discussed. Then, focus is put on reduced form models, including popular examples. For the pricing of portfolio derivatives, copula models, multivariate structural models, and CIID models are investigated.

#### Intended Learning Outcomes:

At the end of the module, students are able to analyse the risk involved in credit derivatives. They have a firm overview on commonly used default models (including their distinct advantages and shortfalls) and are able to use them to price credit derivatives.

#### Teaching and Learning Methods:

Vorlesung, Übung, Computer-Übungen, Übungsblätter (Hausaufgaben)

#### Media:

Semesterapparat, Folien, Tafelarbeit

#### Reading List:

T. Bielecki & M. Rutkowski (2002): Credit Risk: Modeling, Valuation, and Hedging.  
 N. Bingham & R. Kiesel (2004): Risk Neutral Valuation: Pricing and Hedging of Financial Derivatives.  
 P. Schönbucher (2003): Credit Derivatives Pricing Models.  
 R. Zagst (2002): Interest Rate Management.

**Responsible for Module:**

Matthias Scherer, [scherer@tum.de](mailto:scherer@tum.de)

**Courses (Type of course, Weekly hours per semester), Instructor:**

For further information in this module, please click  
[www.campus.tum.de](http://www.campus.tum.de) or [here](#).