

## Course Descriptions Master 2020-2021

Course Title Life Insurance II  
Course Code EBC4120  
ECTS Credits 6,5  
Assessment Whole/Half Grades

Period	Start	End	Mon	Tue	Wed	Thu	Fri
5	12-4-2021	28-5-2021	X			X	

Level Advanced  
Coordinator Jan Christopher Kops For more information: [j.kops@maastrichtuniversity.nl](mailto:j.kops@maastrichtuniversity.nl)  
Language of instruction English

Goals To become acquainted with statistical models that can be used in life insurance.

Description PLEASE NOTE THAT THE INFORMATION ABOUT THE TEACHING AND ASSESSMENT METHOD(S) USED IN THIS COURSE IS WITH RESERVATION. THE INFORMATION PROVIDED HERE IS BASED ON THE COURSE SETUP PRIOR TO THE CORONAVIRUS CRISIS. AS A CONSEQUENCE OF THE CRISIS, COURSE COORDINATORS MAY BE FORCED TO CHANGE THE TEACHING AND ASSESSMENT METHODS USED. THE MOST UP-TO-DATE INFORMATION ABOUT THE TEACHING/ASSESSMENT METHOD(S) WILL BE AVAILABLE IN THE COURSE SYLLABUS. The course provides students with statistical models that are useful in life insurance (many of these models are also used in other fields that are concerned with future lifetimes of individuals or groups such as biostatistics, epidemiology or public health planning). We first discuss methods to model mortality rates for a larger group or an entire population. A particular focus is on the Lee-Carter model and its extensions. We also learn how to estimate these models. Afterwards we turn to models that are appropriate to model the future lifetime of individuals. A focus will be on models that can incorporate covariates such as parametric regression models, the Cox model and the accelerated failure time model. We also address the multiple decrement model. Subsequently, we discuss how these models can be used to set premiums for life insurance products. In the last part of the course we introduce a model that allows to calculate premiums for insurances that may provide benefits depending on the current status of the insured. As part of the course students will also apply the methods introduced to real data.

Literature Research articles, the slides of the course.

Prerequisites Probability Theory and Mathematical Statistics.

Teaching methods PBL / Presentation / Lecture / Assignment

Assessment methods Final Paper / Participation / Written Exam

Evaluation in previous academic year For the complete evaluation of this course please click <http://iwio-sbe.maastrichtuniversity.nl/rapporten.asp?referrer=codeUM>

This course belongs to the following programme / specialisation

Master Econometrics and Operations Research	Elective Course(s)
SBE Exchange Master	Master Exchange Courses
SBE Non Degree Courses	Master Courses