Course Descriptions None 2022-2023

Course Title	Topics in Computational Actuarial Methods
Course Code	EBS4020
ECTS Credits	4,0
Assessment	Pass / Fail

Period

Period	Start	End	Mon	Tue	Wed	Thu	Fri
3	16-1-2023	27-1-2023	C				

Level	Advanced
Coordinator	Stephan Smeekes, Marc Schröder For more information:s.smeekes@maastrichtuniversity.nl; m.schroder@maastrichtuniversity.nl
Language of instruction	English
Goals	To provide an understanding of mathematical models useful in actuarial science and their implementation.
Description	PLEASE NOTE THAT THE INFORMATION ABOUT THE TEACHING AND ASSESSMENT METHOD(S) USED IN THIS COURSE IS WITH RESERVATION. A RE-EMERGENCE OF THE CORONAVIRUS AND NEW COUNTERMEASURES BY THE DUTCH GOVERNMENT MIGHT FORCE COORDINATORS 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 goal of the course is to become familiar with computer based methods useful in actuarial science and financial engineering. The focus of the course will be on Monte Carlo Methods and the Bootstrap. After a general introduction to Monte Carlo Methods we will study variance reducing techniques such as importance sampling and control variates in more detail. To see how these techniques work in practice we will discuss how they can be used in actuarial applications like the calculation of risk measures. Similar, we will first give a general introduction to the Bootstrap. Next, we apply the Bootstrap to actuarial problems like estimation of Value-at-Risk or constructing confidence intervals for the number of claims made per year.
Literature	Research articles and slides of the course.
Prerequisites	Probability Theory and Mathematical Statistics.
Teaching methods	PBL / Lecture / Groupwork
Assessment methods	Final Paper / Participation
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 Skill(s)
SBE Exchange Master	Master Exchange Skills
SBE Non Degree Courses	Master Skills