Course Descriptions None 2023-2024

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	15-1-2024	26-1-2024					

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	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	This course is in transition. The following rule applies to master Econometrics and Operations Research students who started the programme prior to academic year 2023/24. TRANSITIONAL REGULATION (EBS4020): Students who started the MSc E&OR prior to September 2023, who did not successfully complete one of the following skills courses before September 2023 will have to successfully complete the replacement skills training Computational Research Skills (EBS4043) as from academic year 2023-2024 or have a resit examination in 2023-2024. See the Transitional Regulations section in the Master Education and Examination Regulations for more information.
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

Transitional Regulations	See prerequisites