

## Course Descriptions Exchange 2021-2022

Course Title Topics in Computational Actuarial Methods

Course Code EBS4020

ECTS Credits 4,0

Assessment Pass / Fail

Period	Start	End	Mon	Tue	Wed	Thu	Fri
3	10-1-2022	21-1-2022	C				

Level Advanced

Coordinator Stephan Smeekes, Marc Schröder For more information: [s.smeekes@maastrichtuniversity.nl](mailto:s.smeekes@maastrichtuniversity.nl); [m.schroder@maastrichtuniversity.nl](mailto: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 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