

Risk and Safety M.Sc.

An interdisciplinary master from TUM



HOW

- do we stop cascading effects?
- to balance costs and benefits?
- many safety exists should a tunnel have?
- do we ensure the safety of new materials?
- safe should a component of an aircraft be?
- to implement earthquake warning systems?
- often should we inspect a pipeline for damage?
- do we achieve acceptance of safety measures?
- to implement effective measures in a pandemic?
- do we find a good tradeoff between risk and safety?
- safe is it to operate a submarine with a gaming controller?
- do we ensure the safety of human lives in self-driven cars?
- should we adapt to more natural hazard due to climate change?
- can we communicate that there is no such thing as perfect safety?



We educate experts and future leaders in risk and safety who

- master stochastic modeling and reliability assessment
- know tools and strategies for an effective risk management
- understand and shape the societal dimensions of risk
- translate these skills and knowledge into specific engineering domains

Subject areas of the Master:

Risk methods & analytics

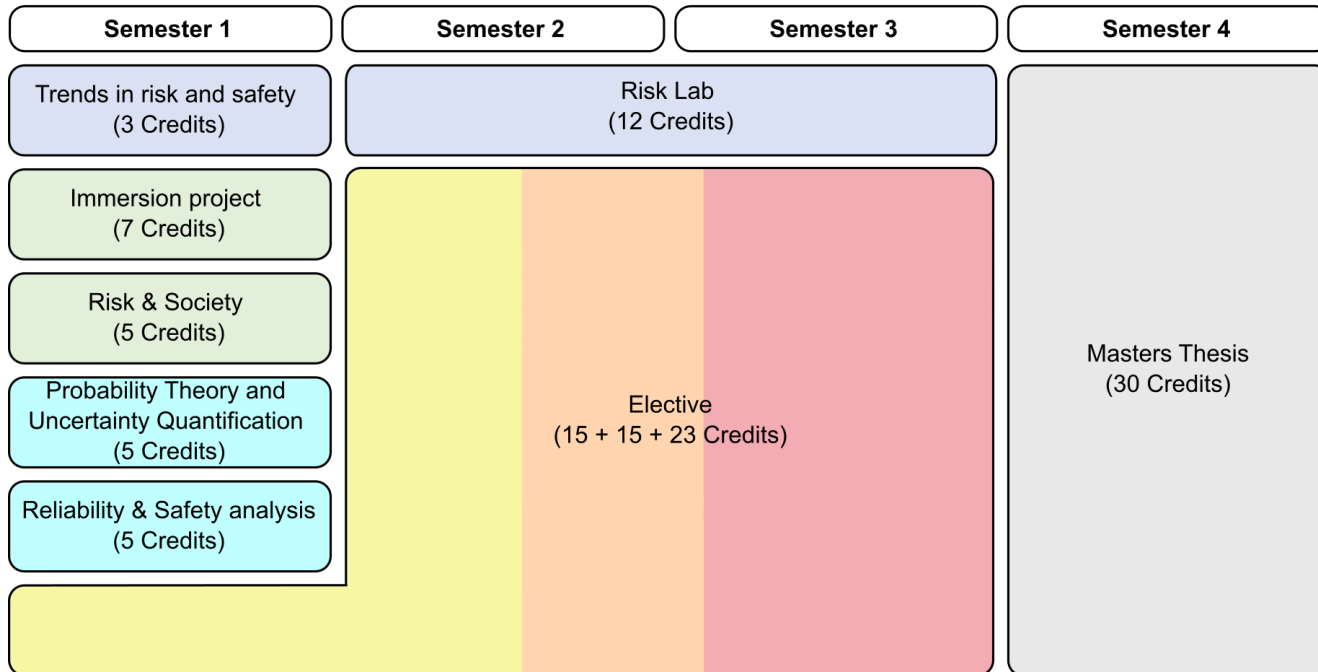
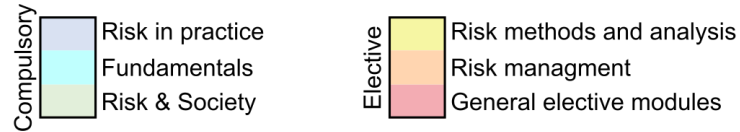
Risk management

Risk & society

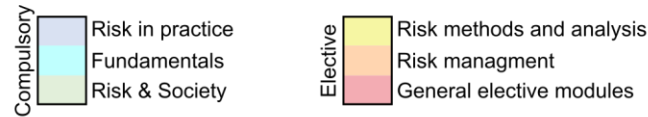
Risk in practice

- Highly interdisciplinary Master's degree with a wide range of specialization options and a diverse range of working opportunities in the industry.

Structure of the Master

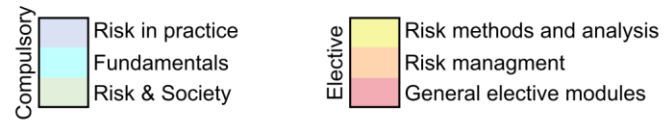


Example 1: Become an expert in aircraft safety



Semester 1	Semester 2	Semester 3	Semester 4
Trends in risk and safety (3 Credits)	Risk Lab (12 Credits)		Masters Thesis (30 Credits)
Immersion project (7 Credits)	Risk Assessment (5 Credits)	System and Functional Safety (5 Credits)	
Risk & Society (5 Credits)	Risk Management (5 Credits)	Operational safety (5 Credits)	
Probability Theory and Uncertainty Quantification (5 Credits)	Risk Perception and Communication (6 Credits)	Prognostics and Health Management (3 Credits)	
Reliability & Safety analysis (5 Credits)	Safety and Certification of Aircraft (5 Credits)	Structural Reliability (3 Credits)	
Python for Engineering Data Analysis (5 Credits)	Helicopter Safety and Certification (3 Credits)	Knowledge and Risk (5 Credits)	
	Safety and Certification of Avionics and Flight Control Systems (5 Credits)		

Example 2: Become an expert in managing natural hazards



Semester 1	Semester 2	Semester 3	Semester 4
Trends in risk and safety (3 Credits)	Mathematical methods in Risk analysis (5 Credits)	Risk Lab (12 Credits)	Masters Thesis (30 Credits)
Immersion project (7 Credits)	Risk Assessment (5 Credits)	Operational safety (5 Credits)	
Risk & Society (5 Credits)	Risk Management (5 Credits)	Alpine Hazards (6 Credits)	
Probability Theory and Uncertainty Quantification (5 Credits)	Risk Perception and Communication (6 Credits)	Forest Ecosystem Management (5 Credits)	
Reliability & Safety analysis (5 Credits)	Flood Risk and Flood Management (6 Credits)		
Python for Engineering Data Analysis (5 Credits)	Estimation of Rare Events and Failure Probabilities (3 Credits)		
	Theoretical Physics approaches in climate and Earth system science (3 Credits)		

When and how to apply?

The master's program starts every year in October (winter semester).
Applications can be submitted until the end of May.

Apply now:



<https://collab.dvb.bayern/pages/viewpage.action?pageId=73390067>