Module Handbook

MSc in Geography of Environmental Risks and Human Security

(Last update: 2018-02-13)

University of Bonn

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### JM1 Theories and Concepts of Risk

**Module: Theories and Concepts of Risk**

<table>
<thead>
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<th>Workload</th>
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<td>JM1</td>
<td>180 h</td>
<td>6 CP</td>
<td>1 Semester</td>
<td>every year</td>
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**Module Responsibility**

UNU-EHS

**Module Coordinator**

Dr. M. Garschagen

**Lecturers**

Lecturers from UNU-EHS & Geography at University of Bonn

**Classification**

<table>
<thead>
<tr>
<th>Programme</th>
<th>Modus</th>
<th>Semester</th>
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<tbody>
<tr>
<td>MSc Geography of Environmental Risks &amp; Human Security</td>
<td>Compulsory</td>
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**Objectives**

- Ability to understand, reproduce and apply key concepts and theories of risk, vulnerability, resilience and adaptation to critically engage with and examine environmental risks and societal vulnerability in relation to human security

**Key Competencies**

- Ability to discuss different concepts and theoretical perspectives on risk with the other course participants
- Capacity to operationalize and analyse risk related issues using relevant theoretical framings

**Contents**

- Introduction into key concepts and theories of vulnerability, risk, resilience, adaptation and human security
- Paradigm shifts from “natural hazards” to “social vulnerability” and “complex emergencies”
- Discussion of the main drivers of risk and vulnerability from local to global scales and between structure and agency
- Detailed discussion and analysis of selected case studies through applying key conceptual frameworks
- Overview of key discourses and policy processes dealing with vulnerability, risk and resilience – including respective international organizations (IPCC, UNFCCC, UNISDR)

**Prerequisites**

None

**Courses**

<table>
<thead>
<tr>
<th>Teaching Unit, Group Size</th>
<th>Hours per week</th>
<th>Workload [h]</th>
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**Examination**

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**Assignments**

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### JM2 General Approaches to Risk & Human Security

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#### Module Responsibility
GIUB, Uni Bonn

#### Module Coordinator
Prof. Dr. J. Verne

#### Lecturers
Lecturers from Geography at University of Bonn & UNU-EHS

#### Classification
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#### Objectives
- Knowledge about different theoretical approaches to society and development and major paradigmatic turns
- Knowledge about fundamental concepts of Earth System Science
- Understanding of relevant social theories and earth surface processes for the analysis of risk & human security in development contexts

#### Key competencies
- Ability to differentiate and discuss key concepts in development geography
- Ability to differentiate and discuss key concepts of Earth System Science

#### Contents
**New Approaches to Development Geography**
- The characteristics of development geography as a subdiscipline
- Different theoretical approaches and paradigmatic shifts
- New theoretical approaches and interdisciplinary links
- Key themes in geographic research of development and risk

**Earth System Science**
- Concepts and fundamental processes in and between the atmosphere, pedosphere, biosphere, hydrosphere, lithosphere, and cryosphere
- Characteristics of geosystems
- Scales in Earth System Science
- Indicators and impacts of global warming (e.g. cryosphere, hydrosphere) and global environmental change

#### Prerequisites
None

#### Courses

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<thead>
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<th>Teaching Unit, Group Size</th>
<th>Hours per week</th>
<th>Workload [h]</th>
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#### Examination mode
graded / non-graded

#### Examination
- In one of the seminars
- Presentation 40%, Essay 60%
- Both parts have to be passed.

#### Assignments
Active in-class discussion and participation, group-work and moderation

graded / non-graded

non-graded
## JM3 Research Methods I

### Module: Research Methods I

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**Module Responsibility:** GIUB, Uni Bonn  
**Module Coordinator:** Prof. Dr. K. Greve  
**Lecturers:** Lecturers from Geography at University of Bonn & UNU-EHS

### Classification

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<td>MSc Geography of Environmental Risks &amp; Human Security</td>
<td>Compulsory</td>
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</table>

### Objectives

- Theoretical knowledge of selected research methodologies  
- Ability to design an empirical research project according to selected methodologies  
- Knowledge about appropriate methods for analysing empirical data/material

### Key competencies

- Ability to assess and critically argue for or against selected research methodologies in relation to theoretical perspectives and concrete research questions  
- Awareness of intercultural, postcolonial and ethical issues in research practice  
- Ability to handle empirical data/material, interpret/analyse and structure it  
- Ability to select and apply appropriate tools and methodologies for data generation in an interdisciplinary context

### Contents

- Epistemological considerations and theoretical background of selected methodologies  
- Potential and limits of selected research methods  
- Focus on e.g. qualitative methodologies, discourse analysis, ethnography, text analysis, visual methods, digital methods, project planning & evaluation, quantitative methods, GIS, remote sensing, inter- or transdisciplinary methods, as well as methods used in physical geography such as geomorphological approaches, dendroecology or hydrological modelling.

### Prerequisites

None

### Courses

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### Examination

- Presentation 40%, Essay 60%  
- Both parts have to be passed.

**Examination mode:** graded /non-graded

### Assignments

- Active in-class discussion and participation, group-work, moderation and exercises

**Assignments:** graded /non-graded

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5
**JM4 Academic & Intercultural Skills**

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**Module Responsibility**
UNU-EHS

**Module Coordinator**
Dr. Z. Sebesvari

**Lecturers**
Lecturers from UNU-EHS & Geography at University of Bonn

**Classification**

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</table>

**Objectives**
- High familiarity with academic argumentation in writing & presentation
- Experience with target group oriented presentations and moderations
- Knowledge of relevant search engines, journal databases etc. for academic literature research

**Key competencies**
- Familiarity with the writing and structuring of essays,
- Ability to communicate research outcomes in different ways (visually, textually, orally) to a variety of audiences and moderate/mediate between them
- Ability to handle different media & tools of presentation

**Contents**
- Analyses of exemplary presentations, self- & buddy-evaluation of class works
- Standard formats of academic writing, esp. essays and journal articles
- Principles & tools of visualization in relation to accessible media
- Rules, principles & instruments of moderation
- Time management, revising and proof-reading of academic work
- Working in intercultural settings

**Prerequisites**
None

**Courses**

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<th>Teaching Unit, Group Size</th>
<th>Hours per week</th>
<th>Workload [h]</th>
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**Examination**

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**Assignments**

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# JMS5 Advanced Debates on Risk & Human Security

## Module: Advanced Debates on Risk & Human Security

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**Module Responsibility**
GIUB, Uni Bonn

**Module Coordinator**
Prof. Dr. M. Evers

**Lecturers**
Lecturers from Geography at University of Bonn & UNU-EHS

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<td>MSc Geography of Environmental Risks &amp; Human Security</td>
<td>Compulsory</td>
<td>2</td>
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**Objectives**
- Practicing scientific discussion in the context of cutting-edge debates on particular dimensions of risk & human security (more than 50%)
- In-depth engagements with particular theoretical perspectives and key concepts in the natural and/or social sciences

**Key competencies**
- Ability to participate in academic discourse and situate oneself in more specialized discussions related to risk & human security
- Interdisciplinary reflection on socio-ecological and risk concepts

**Contents**
Seminars offered in this module focus either on the environmental dimension or the human dimension of risks & human security, depending on their basis in physical or human geography. Some seminars will try to integrate both perspectives.

**Environmental Dimension** - possible topics include:
- The role of ecosystems for Disaster Risk Reduction
- Socio-ecological systems and Ecosystem services
- Development and characteristics of different types of natural hazards, forecast and prediction
- Integrative concepts on natural hazards such as socio-hydrology

**Human Dimension** - possible topics include:
- Different concepts of human-nature relationships
- Knowledge and Ignorance
- Global technologies in risk governance
- Processes of securitization

**Prerequisites**
None

**Courses**
<table>
<thead>
<tr>
<th>Teaching Unit, Group Size</th>
<th>Hours per week</th>
<th>Workload [h]</th>
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<td>1 Seminar (human/environment/integrative) (24)</td>
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**Examination mode**
graded /non-graded

**Examination**
In both seminars
- Presentation 40%, Essay 60%
- Both parts have to be passed.

**Assignments**
Active in-class discussion and participation, group-work and moderation

graded /non-graded
# JM6 Practical Training

## Module: Practical Training

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<td>360 h</td>
<td>12 CP</td>
<td>2 Semester</td>
<td>every year</td>
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### Module Responsibility
GIUB, Uni Bonn

### Module Coordinator
Prof. Dr. D. Müller-Mahn

### Lecturers
Lecturers from Geography at University of Bonn & UNU-EHS

### Classification

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<td>MSc Geography of Environmental Risks &amp; Human Security</td>
<td>Compulsory</td>
<td>2+3</td>
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### Objectives
- Ability to design and assess practical procedures in risk & disaster management in a small group

### Key competencies
- Ability to work and communicate decision making processes in teams
- Knowledge and ability to discuss the potential and limitations of different workflows and simulation exercises

### Contents
- Examples of how geospatial technologies are used in the fields of risk management, disaster preparedness and response.
- SDI: Principles of interoperability and web based services, interface standards, esp. OWS, SOA
- Early Warning Systems and Geospatial technologies in support of Disaster Risk Reduction (DRR) and Emergency Response
- Scenario-based simulation exercise
- Safety and Security, UN eLearning course “Basic Security in the Field”

### Prerequisites
None

### Courses

<table>
<thead>
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### Examination

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### Assignments

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### JM6/JM7 Research Project

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**Module Responsibility:** GIUB, Uni Bonn  
**Module Coordinator:** Prof. Dr. D. Müller-Mahn

**Lecturers:** Lecturers from Geography at University of Bonn & UNU-EHS

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<td>MSc Geography of Environmental Risks &amp; Human Security</td>
<td>Compulsory</td>
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**Objectives:**
- Ability to identify and work on relevant research questions independently  
- Ability to design and undertake a research project in a small group  
- Ability to select appropriate methods to adequately address the research question  
- Ability to interpret or analyse empirical material in relation to theoretical debates  
- Ability to communicate the research process and outcomes verbally, visually and in written form

**Key competencies:**
- Knowledge and experience to develop and pursue a research project, produce and analyse empirical material and present results  
- Ability to work and communicate research in teams  
- Critical reflection and creativity

**Contents:**  
The topics should be related to cutting-edge debates on risk & human security and will be derived from the spectre of contemporary geographic research in the Department of Geography in the fields of "governance & space", "globalisation & development", "environmental systems under change" or GIS and remote sensing.

**Prerequisites:** None

### Courses

<table>
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**Examination:**
- Presentation 40%, Project Report 60%  
- Both parts have to be passed.

**Assignments:**
- Active in-class discussion and participation, group-work and moderation

**Examination mode:** graded / non-graded

**Grading:**
- Presentation: graded  
- Project Report: graded  
- Assignments: graded / non-graded
## JM7 Research Methods II

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**Module Responsibility**: GIUB, Uni Bonn

**Module Coordinator**: Prof. Dr. K. Greve

**Lecturers**: Lecturers from Geography at University of Bonn & UNU-EHS

### Classification

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### Objectives

- Theoretical knowledge of selected research methodologies
- Ability to design an empirical research project according to selected methodologies
- Knowledge about appropriate methods for analysing empirical data/material

### Key competencies

- Ability to assess and critically argue for or against selected research methodologies in relation to theoretical perspectives and concrete research questions
- Awareness of intercultural, postcolonial and ethical issues in research practice
- Ability to handle empirical data/material, interpret/analyse and structure it
- Ability to select and apply appropriate tools and methodologies for data generation in an interdisciplinary context

### Contents

- Potential and limits of selected research methods
- *Focus on GIS and Remote Sensing*: Data structures, mapping principles, projections, platforms, sensors, image processing etc.
- GIS and Earth Observation for disaster risk reduction

### Prerequisites

None

### Courses

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### Examination

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### Assignments

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non-graded
**JM8 Fieldtrips**

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**Module Responsibility**
- UNU-EHS

**Module Coordinator**
- Dr. M. Hagenlocher

**Lecturers**
- Lecturers from UNU-EHS & Geography at University of Bonn

**Classification**

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<td>MSc Geography of Environmental Risks &amp; Human Security</td>
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<td>2</td>
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**Objectives**
- Insights in institutions working in the field of environmental risks & human security
- Learning from professionals actively engaged in the field of environmental risks & human security
- Ability to lead and participate in expert interviews
- Learning the principles of geographic observation

**Key competencies**
- Ability to apply theoretical and methodological knowledge in specific settings and professional working environments

**Contents**
Students have to take part in at least five days of fieldtrips. They will be organised to convey a deeper insight into topics relevant to the wider understanding of environmental risks & human security.

**Prerequisites**
- None

**Courses**

<table>
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<th>Teaching Unit, Group Size</th>
<th>Hours per week</th>
<th>Workload [h]</th>
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<td>Excursions (min. of 5 days) (24)</td>
<td>2</td>
<td>180</td>
<td>6</td>
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</tbody>
</table>

**Examination**
- Examination mode
  - graded /non-graded
- None

**Assignments**
- Preparatory reading and exercises, active discussion and participation, group-work, presentation
  - graded /non-graded
  - non-graded
# JM9 Applied Topics on Risk & Human Security

## Module: Applied Topics on Risk & Human Security

<table>
<thead>
<tr>
<th>Module Number</th>
<th>Workload</th>
<th>Credit Points</th>
<th>Duration</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>JM9</td>
<td>360 h</td>
<td>12 CP</td>
<td>1 Semester</td>
<td>every year</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Module Responsibility</th>
<th>UNU-EHS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Module Coordinator</td>
<td>S. Kreft</td>
</tr>
</tbody>
</table>

| Lecturers | Lecturers from UNU-EHS & Geography at University of Bonn |

### Classification

<table>
<thead>
<tr>
<th>Programme</th>
<th>Modus</th>
<th>Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>MSc Geography of Environmental Risks &amp; Human Security</td>
<td>Compulsory</td>
<td>3</td>
</tr>
</tbody>
</table>

### Objectives

- Gain a profound understanding of how theoretical concepts are translated and adapted to practical concerns, economic considerations and humanitarian response mechanisms.
- Familiarity with major policy fora (international / UN, regional, national) to promote risk management and govern environmental risks.

### Key competencies

- Readiness to accept and constructively handle competing concepts of environmental governance and climate risk management and their implementation.
- Comprehensive knowledge of structures, workflows, and practical challenges that international organizations, particularly UN organizations, are facing.

### Contents

Possible course foci include:

- Structures and mechanisms of national civil protection, EU and UN, other international organizations, NGO’s, private sector.
- Introduction of important international policy making processes (UNFCCC, Sendai, SDGs, G7, G20) and how they address and deal with issues like climate risk management.
- Concepts of hazard and exposure modelling and how to value benefits of adaptation measures based on the Economics of Climate Adaptation (ECA) method.
- Loss & Damage
- Environmental Migration
- Climate Insurance

### Prerequisites

None

### Courses

<table>
<thead>
<tr>
<th>Teaching Unit, Group Size</th>
<th>Hours per week</th>
<th>Workload [h]</th>
<th>CP</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Seminar on applied topics (24)</td>
<td>2</td>
<td>180</td>
<td>6</td>
</tr>
<tr>
<td>1 Seminar on applied topics (24)</td>
<td>2</td>
<td>180</td>
<td>6</td>
</tr>
</tbody>
</table>

### Examination

<table>
<thead>
<tr>
<th>Examination mode</th>
<th>graded /non-graded</th>
</tr>
</thead>
<tbody>
<tr>
<td>Written Exam</td>
<td>graded</td>
</tr>
<tr>
<td>Written Exam</td>
<td>graded</td>
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</table>

### Assignments

Active in-class discussion and participation, group-work, moderation and presentation graded /non-graded
### JM10 Internship

**Module: Internship**

<table>
<thead>
<tr>
<th>Module Number</th>
<th>Workload</th>
<th>Credit Points</th>
<th>Duration</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>JM10</td>
<td>360 h</td>
<td>12 CP</td>
<td>8 weeks</td>
<td>every year</td>
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</table>

**Module Responsibility**

UNU-EHS

**Module Coordinator**

K. Hattenbach

**Lecturers**

Lecturers from UNU-EHS & Geography at University of Bonn

**Classification**

<table>
<thead>
<tr>
<th>Programme</th>
<th>Modus</th>
<th>Semester</th>
</tr>
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<tbody>
<tr>
<td>MSc Geography of Environmental Risks &amp; Human Security</td>
<td>Compulsory</td>
<td>3</td>
</tr>
</tbody>
</table>

**Objectives**

- Understanding structures and workflows within national / international key organizations related to the topics of this Master Programme
- Professional experience within national / international organizations or collaborative networks

**Key competencies**

- Successful application of knowledge and skills acquired during the Master Programme within a professional working environment

**Contents**

The internship may take place in any UN organisation, other national / international institutions, or an organisation working in thematic fields relevant to this programme. The placement in UN organisations is supported by UNU-EHS. Students choose their own work placement in fields relevant to this Master Programme.

**Prerequisites**

None

**Courses**

<table>
<thead>
<tr>
<th>Teaching Unit, Group Size</th>
<th>Hours per week</th>
<th>Workload [h]</th>
<th>CP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individual Internship in UN or other national / international organization</td>
<td>8 weeks</td>
<td>360</td>
<td>12</td>
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</tbody>
</table>

**Examination**

Examination mode: graded / non-graded

None

**Assignments**

Internship proposal, final report: graded / non-graded

non-graded
# 8000 Master Thesis

**Module: Master Thesis**

<table>
<thead>
<tr>
<th>Module Number</th>
<th>Workload</th>
<th>Credit Points</th>
<th>Duration</th>
<th>Frequency</th>
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</thead>
<tbody>
<tr>
<td>8000</td>
<td>900 h</td>
<td>30 CP</td>
<td>1 Semester</td>
<td>every semester</td>
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**Module Responsibility**: GIUB, Uni Bonn  
**Module Coordinator**: Prof. Dr. J. Verne  
**Lecturers**: Lecturers from UNU-EHS & Geography at University of Bonn

<table>
<thead>
<tr>
<th>Classification</th>
<th>Programme</th>
<th>Modus</th>
<th>Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>MSc Geography of Environmental Risks &amp; Human Security</td>
<td>Compulsory</td>
<td>4</td>
</tr>
</tbody>
</table>

**Objectives**
- Solve a well-defined, significant research problem under supervision, but in principle independently  
- Knowledge about theoretical, methodological and thematic context of the chosen research topic  
- Ability to argue convincingly according to scientific principles

**Key competencies**
- Write a scientific documentation of considerable length according to established scientific principles of form and style, in particular reflecting solid knowledge about the state-of-the-art in the field  
- Time-management

**Contents**
Topics of the Master Thesis may be chosen from any relevant field of the Master Programme’s curriculum with approval from the supervisor. All theses should include the development of a research focus, its theoretical and methodological contextualisation, a thorough discussion of relevant literature or the analysis/interpretation of (original) empirical material and conclusive thoughts.

**Prerequisites**
Min. of 60 CP must have been achieved within the Master Programme

<table>
<thead>
<tr>
<th>Courses</th>
<th>Teaching Unit, Group Size</th>
<th>Hours per week</th>
<th>Workload [h]</th>
<th>CP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Independent preparation and writing of Master Thesis with individual supervision</td>
<td>6 months</td>
<td>900</td>
<td>30</td>
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</table>

**Examination**
- Examination mode: graded /non-graded  
- Master Thesis: graded

**Assignments**
- Participation in Masterkolloquium at GIUB, Exposé: graded /non-graded  
- non-graded