**Lehrform (teaching format) / SWS (hours per week):** 2VL + 2UE

**Kreditpunkte (credit points):** 6

**Turnus (frequency):** usually, each winter term

**Inhaltliche Voraussetzungen (content-related prior knowledge/skills):** Grundlagenvorlesungen der Mathematik

**Sprache (language):** English

**Lehrende (teaching staff):** AG Theoretische Informatik (Prof. Dr. Sebastian Siebertz)

<table>
<thead>
<tr>
<th>Studiengang (degree program)</th>
<th>Module</th>
<th>Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>Informatik (Master)</td>
<td>IMAT, IMVT-SQ</td>
<td>from 1st sem.</td>
</tr>
<tr>
<td>Informatik (Bachelor)</td>
<td>(nur Freie Wahl)</td>
<td></td>
</tr>
</tbody>
</table>

**Lernergebnisse / Learning Outcome:**

- Basic knowledge of modern axiomatic set theory
- Understanding of formal proofs and the limitations of the axiomatic method
- Basic knowledge of classical model theory

**Inhalte / Contents:**

- Naive set theory and Roussel's paradox
- The axioms of modern set theory (ZFC)
- Paradoxes of set theory
- Gödel's incompleteness theorem
- Basics of first-order model theory
- Gödel's completeness theorem
- Compactness of first-order logic

**Hinweise (remarks):** The table lists only the primary / most specific modules to which this course is assigned.