

**Modules:** physics700 **Elective Advanced Lectures**  
physics730 **Theoretical Physics**

**Course:**  **General Relativity for Experimentalists (T)**

**Course No.:** physics768

Category	Type	Language	Teaching hours	CP	Semester
Elective	Lecture with exercises	English	3+2	7	WT/ST

**Requirements:**

**Preparation:**

Theoretische Physik I & II, Analysis I & II

**Form of Testing and Examination:**

Weekly homework sets (50% required), Final exam

**Length of Course:**

1 semester

**Aims of the Course:**

The students shall learn the basics of general relativity and be able to apply it to applications such as experimental tests of GR, GPS, astrophysical objects and simple issues in cosmology.

**Contents of the Course:**

Review of special relativity  
Curved spacetime of GR  
Experimental tests of GR  
GPS  
Black holes  
Gravitational waves  
Introductory cosmology

**Recommended Literature:**

GRAVITY, by James Hartle  
A FIRST COURSE IN GENERAL RELATIVITY, by Bernard Schutz  
EXPLORING BLACK HOLES, by Taylor and Wheeler