The subject matter of the seminar is the theory of semi-simple algebras which are finite-dimensional over a field. Interesting examples are division algebras, i.e., non-commutative field extensions. Over the field $\mathbb{R}$, there is a unique such division algebra, the Hamilton quaternions. We will define the Brauer group of a field that can also be interpreted in terms of Galois cohomology. We will determine the Brauer groups of interesting fields, like $\mathbb{R}$, or $\mathbb{F}_p$, or $\mathbb{Q}_p$.

The prerequisites are:

- Basic concepts of Algebra, the tensor product.

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