

## Physics Lab for Pharmacy Students

**Lecture-Nr.:** 52901

**Type:** practical course

**Duration:** 2.5 hours per week

**Method of Assessment:** A report (Protokoll) must be written by the Students after every experimental session. Each report is evaluated by the responsible assistants.

**ECTS Credit Points:** 2

### Topics:

- 1. Statistics I: An introduction into the general principles of Statistics. Gauss-distribution, Poisson distribution, theorem of the Central Limit.
- 2. Statistics II: Significance tests. T-Student test of the effect of caffeine on reaction times.
- 3. Statistics III: Radioactivity. Measurement of an ultra-weak radioactive source by means of a Geiger counter. Description of the distribution of rare decay events by a Poisson distribution.
- 4. Mechanics I: The pendulum. Measurement of the Earth's gravitational field with error determination.
- 5. Mechanics II: The Atwood machine. Alternative determination of the Earth's gravitational field.
- 6. Electronics I: The Ohm's law. Resistance, electrical power, dissipation.
- 7. Electronics II: The RLC circuit. Harmonic oscillator and resonance phenomena. Dissipation.
- 8. Optics I: Absorption of white light, Lambert-Beer law.
- 9. Optics II: Measurement of the absorption spectrum of a Chlorophyll solution by means of a Spectrophotometer.
- 10. Waves: Study of the reflection, scattering and diffraction of shallow water waves, which are imaged by a stroboscopic setup.

### Literature:

1. Ulrich Haas, "Physik für Pharmazeuten, Mediziner und Studierende mit Physik als Nebenfach", Wissenschaftliche Verlagsgesellschaft Stuttgart, 2011, 7. Neubearb. u. erw. Aufl. ISBN: 9783804725539. Book available at Lesesaal Physik: Signatur 84/UC 177 H112(7).

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