Methods of Experimental Astrophysics (OA) - MethExpAstro

Course	**Methods of Experimental Astrophysics (OA)**
Course No.	MethExpAstro

Category	**Type**	**Language**	**Teaching hours**	**CP**	**Semester**
Elective	Lecture with exercises	English	2+1	4	ST

Requirements for Participation:

Preparation: Elementary Physics (Bachelor level); Astrophysics I (and II)

Form of Testing and Examination: Exercise and written test; or oral examination

Length of Course: 1 semester

Aims of the Course: Gain insight into which type of instrumentation, based on which principles, is employed for particular astronomical and astrophysical applications; and learn about their practical and fundamental limitations in resolution and sensitivity

Contents of the Course:

- detection of radiation: direct and coherent detection
- Signal/Noise ratio: fundamental and practical limits
- principles of optical instruments: imaging
- principles of optical instruments: spectroscopy
- radio receivers: Local Oscillator, Mixer and Backend-Spectrometers
- calibration: theory and measurement startegies

Recommended Literature:

Rieke: Detection of Light

Kraus: Radioastronomy

Bracewell: The Fourier Transform and its Applications

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