**Modules:**

astro830 **Elective Advanced Lectures**
astro840 **Observational Astronomy**

# Course: Methods of Experimental Astrophysics (OA)

**Course No.:**

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

**Requirements:**

**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