



UNIVERSITÀ DEGLI STUDI DI PALERMO

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| DEPARTMENT | Fisica e Chimica - Emilio Segrè |
| ACADEMIC YEAR | 2021/2022 |
| BACHELOR'S DEGREE (BSC) | OPTICS AND OPTOMETRY |
| SUBJECT | EQUIPMENT FOR OPTICS AND ASTRONOMY |
| TYPE OF EDUCATIONAL ACTIVITY | B |
| AMBIT | 50163-Astrofisico, geofisico e spaziale |
| CODE | 20242 |
| SCIENTIFIC SECTOR(S) | FIS/05 |
| HEAD PROFESSOR(S) | ARGIROFFI COSTANZA Ricercatore Univ. di PALERMO |
| OTHER PROFESSOR(S) | |
| CREDITS | 6 |
| INDIVIDUAL STUDY (Hrs) | 94 |
| COURSE ACTIVITY (Hrs) | 56 |
| PROPAEDEUTICAL SUBJECTS | |
| MUTUALIZATION | |
| YEAR | 3 |
| TERM (SEMESTER) | 1° semester |
| ATTENDANCE | Mandatory |
| EVALUATION | Out of 30 |
| TEACHER OFFICE HOURS | <p>ARGIROFFI COSTANZA</p> <p>Monday 15:00 17:00 Osservatorio Astronomico (Palazzo dei Normanni). Su richiesta dello studente il ricevimento può anche essere svolto in remoto. Ricevimento dedicato agli studenti del corso di Evoluzione Stellare, Laurea in Fisica.</p> <p>Thursday 15:00 17:00 Osservatorio Astronomico (Palazzo dei Normanni). Su richiesta dello studente il ricevimento può anche essere svolto in remoto. Ricevimento dedicato agli studenti del corso di Fisica, Laurea in Scienza della Natura e dell'Ambiente.</p> <p>Friday 15:00 17:00 Osservatorio Astronomico (Palazzo dei Normanni). Su richiesta dello studente il ricevimento può anche essere svolto in remoto. Ricevimento dedicato agli studenti del corso di Strumentazione per Ottica e Astronomia, Laurea in Ottica e Optometria.</p> |

DOCENTE: Prof.ssa COSTANZA ARGIROFFI

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| PREREQUISITES | The prerequisites to effectively attend the teaching and achieve the predefined goals are: knowledge and capacity to apply laws and concepts related to classical physics, mathematics, and geometrical optics. |
| LEARNING OUTCOMES | <ul style="list-style-type: none">- Knowledge and understanding Knowing and understanding the basic principles of astronomical instruments.- Applying knowledge and understanding Understanding how the properties of individual optical elements determine the main characteristics of a telescope.- Making judgements Being able to identify the main properties and features of a telescope.- Communication Being able to describe simple astronomical observing instruments, adopting the correct language.- Learning skills Being able to use the knowledge acquired during the course to address, study, and comprehend further aspects related to the astronomical instrumentation. |
| ASSESSMENT METHODS | <p>The final exam is an oral test. The exam aims at evaluating the theoretical knowledge, the reasoning ability, and the practical skills acquired during the laboratory experiences (evaluated also from the report). Evaluation is based on the following scheme:</p> <ul style="list-style-type: none">- sufficient knowledge of the course topics, with elementary capabilities of analysis, application, and exposure: grade 18-21;- good knowledge of the course topics, with good capabilities of analysis, application, and exposure: grade 22-25;- very good knowledge of the course topics, with a very good understanding of both theoretical and experimental aspects, very good ability to apply and argue them, with logical, technical, and scientific accuracy, and very good exposure skills: grade 26-28;- full and deep knowledge of the course topics, with a complete and mature vision of both theoretical and experimental aspects, full ability to apply and argue them, with profound logical, technical, and scientific accuracy, excellent exposure skills: grade 29-30L. |
| EDUCATIONAL OBJECTIVES | The goal of the course is the knowledge, both theoretical and practical, of the different types of telescopes, of their main characteristics, and how these characteristics are determined by the individual optical elements of the telescopes. |
| TEACHING METHODS | The didactic activities consist of both in-class lessons and practical laboratory experience. Concerning the in-class lessons the teacher presents the subjects using both blackboard and electronic presentations. In presenting the different topics, both the theoretical and the practical aspects are emphasized. The topics are presented by the teacher by soliciting and guiding the discussion with the students, to make the lesson more productive. The laboratory activities consist of practical application of some of the topics discussed during the course. Aim of these activities is to allow students to consolidate their theoretical skills and acquire practical abilities. It is required to produce a written report concerning these laboratory experiences. In addition to the recommended textbooks, additional texts and scientific publications are provided to the students, as material for deeper studies. According to what was established in the meeting of the Organizing Committee on 05/07/2019, the laboratory hours are mandatory. The maximum admissible limit for absences occurred during mandatory laboratory hours is 25%, as declared in the Regulation of the Degree Course in Optics and Optometry. |
| SUGGESTED BIBLIOGRAPHY | Appunti di ottica astronomica - Luigi Ferioli - Hoepli - ISBN 13: 978-8820316310 Il libro dei telescopi - Walter Ferreri - Il Castello - ISBN 13: 978-8880390930 Field Guide to Astronomical Instruments - Keller, Navarro, Brandl - SPIE - ISBN: 9781628411775 |

SYLLABUS

| Hrs | Frontal teaching |
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| 2 | Revision of basic concepts of wave physics |
| 2 | Revision of basic concepts of optics |
| 6 | Optical elements |
| 4 | Main parameters of astronomical observations |
| 6 | Main astronomical telescopes and their properties |
| 4 | Detectors |
| 4 | Different types of astronomical observations |
| 4 | Astronomical observations in different wave bands |

| Hrs | Workshops |
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| 24 | Laboratory experiences concerning the accomplishment of basic astronomical observations. These 24 hours include the preparation and exploit of the observations, the data analysis, and the preparation of the written report. |