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Physics and Astronomy Collection Development Policy

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Physics and Astronomy Collection Development Policy
University Libraries, University of Nebraska-Lincoln
Virginia Baldwin, December, 2009
Approved: CDC, December 16, 2009

I. GENERAL ACADEMIC PROGRAM INFORMATION

The Department of Physics and Astronomy offers the B.A. and B.S., M.S. and Ph.D. degrees. The department offers a Physics degree with an astronomy option and Physics faculty will continue to teach Astronomy classes. The graduate program in Astronomy is being phased out and there is currently no Physics Education program. The Department of Physics and Astronomy at the University of Nebraska-Lincoln offers graduate education leading to the degrees of Master of Science and Doctor of Philosophy in Physics. The Department has a flexible program of graduate study to accommodate students with a wide variety of goals and backgrounds.

The Department of Physics and Astronomy at UNL houses many state-of-the-art research and teaching facilities. Among these include the Extreme Light Laboratory, which houses Diocles, one of the most powerful lasers in the world, the on-campus Student Observatory and Behlen Observatory in Mead, NE, where students can study astrophysical phenomena such as quasars and pulsating stars.

Graduate and Undergraduate students are involved in research and projects like the study of nanoscale magnetic materials important in future technological development. They also perform experiments to "stop" light and do research on matter waves and unusual behavior of chiral molecules. Some students even study the fundamental constituents of matter that make up our universe at some of the world's highest-energy particle accelerator laboratories. Descriptive Physics , Elementary General Physics I, Honors: Elementary General Physics I, Elementary General Physics II, Honors: Elementary General Physics II, Elements of Physics, General Physics I, Honors: General Physics I, General Physics II, Honors: General Physics II, Liberal Arts Physics: Matter and Motion, and Liberal Arts Physics: Atoms and Fields (PHYS 115, 141, 141H, 142, 142H, 151, 211, 211H, 212, 212H, 260, and 261) have been designated as an ACE (Achievement-Centered Education) courses.

Research emphases in the Department are divided among four major areas: particle and field theory; condensed matter and applied physics; atomic, molecular, and chemical physics; and astronomy and astrophysics.

The AMOP is a funded program of excellence. The primary goal of this Program of Excellence (PoE) is to enable the AMOP physics group to increase its visibility and stature internationally and to position it to become one of the top-ranked such programs in the U.S.A. and one that is highly successful in obtaining increased external grant funding (which is estimated in FY07/08 to be double that in FY01/02 and, adding a one-time $2.7 million award, is over five times greater). The primary means of accomplishing our goal is to increase the group's faculty from six to ten. Priority in such hiring is to build upon our current strengths, including especially the competitive advantage that the new 150 Terawatt laser facility gives our group in the emerging new scientific areas of intense laser-atom and laser-plasma physics.

This is the only Ph.D. program in physics in Nebraska. There is no accrediting body for the area. The department has overlapping interest with Chemistry, Electrical Engineering, Mechanical Engineering, Chemical & Biomolecular Engineering, and Engineering Mechanics.

II. GEOGRAPHICAL COVERAGE

No restrictions. Materials are selected for scientific importance. Most materials come from the United States, Western Europe, Russia, and Japan.

III. CHRONOLOGICAL COVERAGE

Emphasis is on the 20th century. Historical science material is usually acquired for the History Department by the history liaison.

IV. IMPRINT DATE

Emphasis is on current materials. Retrospective collecting is selective to support current research or areas of interest.

V. FORMAT/TYPE AND LEVEL OF MATERIALS

Most materials are acquired in the form of periodicals, monographs, and pre-prints, with emphasis on periodicals.

VI. LANGUAGES

English is the preferred language at all levels of intensity. At the study and research levels German, French, Russian, and Italian are acceptable. Literature in other languages may be acquired when requested by library users. At the minimal and basic level, only materials in English are collected. When available, English translations are preferred to the original language.

VII. SPECIAL FACTORS

Because of the nature of research, both theoretical and applied, primary material is of the utmost importance. Much of this material is in the form of society or association serials. Of primary importance to the Department of Physics and Astronomy are the publications of the American Institute of Physics, Institute of Physics Publishing, American Physical Society, Optical Society of America, Society of Rheology, American Crystallographic Association, American Astronomical Society, and American Association of Physicists in Medicine. In astronomy, publications of the Institute of Physics Publishing are essential.

Although most of the key reference works and the monographic and serial material are in Love Library, materials in Mathematics and Engineering libraries are of major importance to the department. The Engineering Library is a U.S. Patent and Trademark and Depository Library Program Library and the publications of the U.S. Patent and Trademark Office are included in the Engineering Library collection. All patent search aids that are provided by the U.S. Patent and Trademark Depository Library Program are retained.

Important areas of research in Physics, such as BioPhysics, are not studied intensively as faculty have not been hired in these areas. The research needs of new faculty should be identified and the collection intensity updated as necessary.

VIII. CLASSIFICATION AND INTENSITY LISTING

(The following are listed by LC Class, Subject, and then by Intensity Level)

QB 1 Astronomy. General works RESEARCH

QB 15-55 History STUDY

QB 61 Study and teaching RESEARCH

QB 64 Observers' handbooks STUDY

QB 81-84 Observatories STUDY

QB 85-139 Astronomical instruments STUDY

QB 145-237 Practical astronomy STUDY

QB 275-343 Geodesy BASIC

QB 351-480 Theoretical astronomy RESEARCH

QB 361 Planetary theory STUDY

QB 391 Lunar theory STUDY

QB 401 Satellites STUDY

QB 460 Astrophysics RESEARCH

QB 463 Nuclear astrophysics RESEARCH

QB 468 Non-optical methods of astronomy STUDY

QB 475 Radio astronomy STUDY

QB 500-791 Descriptive astronomy RESEARCH

QB 600 Planets STUDY

QB 721 Comets STUDY

QB 741 Meteors STUDY

QB 801-843 Stars RESEARCH

QB 851-860 Clusters and nebulae RESEARCH

QB 871 Stellar spectroscopy RESEARCH

QB 981 Cosmogony. Cosmology RESEARCH

QC 1-5 Physics RESEARCH

QC 6-19 History and philosophy BASIC

QC 20 Mathematical physics RESEARCH

QC 24-26 Theoretical/particle.Popular works excluded BASIC

QC 30 Study and teaching BASIC

QC 120-131 Descriptive and experimental mechanics STUDY

QC 133-136 Dynamics RESEARCH

QC 145 Hydrostatics BASIC

QC 150-159 Fluid dynamics BASIC

QC 170Atomic physics (General) RESEARCH

QC 173.5 Relativity physics RESEARCH

QC 173.96 Quantum theory-Quantum mechanics RESEARCH

QC 174.2 Wave mechanics RESEARCH

QC 174.4 Quantum statistics RESEARCH

QC 174.5 Quantum field theory RESEARCH

QC 174.7 Statistical physics RESEARCH

QC 175 Kinetic theory of gases RESEARCH

QC 176 Solid-state physics RESEARCH

QC 176.8 Special topics RESEARCH

QC 178 Theories of gravitation RESEARCH

QC 182-189 Special properties of matter RESEARCH

QC 221 Acoustics STUDY

QC 223 Mathematical theory STUDY

QC 231 Special topics RESEARCH

QC 243 Sound waves RESEARCH

QC 244.5 Acoustic holography STUDY

QC 271 Heat STUDY

QC 278 Low temperature RESEARCH

QC 281 High pressure STUDY

QC 301 Change of state STUDY

QC 311 Thermodynamics RESEARCH

QC 318 Special topics RESEARCH

QC 320-330 Heat transfer RESEARCH

QC 350-370 Optics RESEARCH

QC 370.5 Optical instruments and apparatus RESEARCH

QC 380 Geometrical optics RESEARCH

QC 398 Physical optics RESEARCH

QC 401 Theory of light RESEARCH

QC 411 Interferrometry RESEARCH

QC 415 Diffraction RESEARCH

QC 427 Scattering RESEARCH

QC 446.2 Nonlinear optics RESEARCH

QC 449 Holography STUDY

QC 451 Spectrophysics RESEARCH

QC 454 Special topics of spectra and spectroscopy e.g. laser spectroscopy RESEARCH

QC 457 Infra-red spectrum RESEARCH

QC 459 Ultraviolet spectrum RESEARCH

QC 474-476 Radiation physics RESEARCH

QC 476.5 Luminescence RESEARCH

QC 480 X-rays STUDY

QC 482 X-rays – Diffraction RESEARCH

QC 481 Special topics RESEARCH

QC 485 Cosmic ray physics RESEARCH

QC 490 Other radiations RESEARCH

QC 503 Electricity (including magnetism) RESEARCH

QC 585 Dielectrics RESEARCH

QC 595 Pyroelectricity. Piezcelectricity RESEARCH

QC 601 Electric currents RESEARCH

QC 610.9 Semiconductor physics RESEARCH

QC 621-629 Thermoelectricity RESEARCH

QC 630 Electrodynamics RESEARCH

QC 660.5 Electric oscillations ad electric waves RESEARCH

QC 665 Special topics, e.g. Scattering, waves and fields RESEARCH

QC 670 Electromagnetic theory/fields RESEARCH

QC 671 Electromagnetic scattering RESEARCH

QC 675 Magneto-optics RESEARCH

QC 680 Quantum electron dynamics RESEARCH

QC 701-702 Ions RESEARCH

QC 711 Electric discharge through gases RESEARCH

QC 717.6 Plasma, Ionized gases RESEARCH

QC 718 Special topics RESEARCH

QC 718.5 Plasma General works STUDY

QC 721 Particle physics RESEARCH

QC 750-756 Magnetism RESEARCH

QC 760 Magnets RESEARCH

QC 761 Magnetic induction RESEARCH

QC 761.5 Ferromagnetism RESEARCH

QC 762 Nuclear magnetism RESEARCH

QC 770 Nuclear and particle physics RESEARCH

QC 786.4 Reactor physics STUDY

QC 787 Other instruments, e.g. Accelerators, etc. RESEARCH

QC 793 Elementary particle physics RESEARCH

QC 793.3 Special topics RESEARCH

QC 793.5 Special nuclear and subnuclear particles e.g. Hadrons RESEARCH

QC 793.9 Interaction [few particle pools] RESEARCH

QC 794 Nuclear interaction RESEARCH

QC 794.6 Special topics, e.g. collisions, scattering etc. RESEARCH

QC 794.8 Special types of interactions RESEARCH

QC 795 Radiation physics RESEARCH

QC 801 Cosmic physics STUDY

QC 809 Special topics especially cosmic magnetic fields RESEARCH

QC 879 Aeronomy-upper atmosphere physics STUDY

QC 880 Dynamic meteorology STUDY

QC 960 Electrical phenomena in the atmosphere STUDY

QD 95-98 Qualitative analysis BASIC

QD 171-172 Inorganic chemistry of metals RESEARCH

QD 461 Atomic and molecular theory and structure RESEARCH

QD 470-480 Quantum chemistry BASIC

QD 501 Conditions and laws of chemical reactions BASIC

QD 901-911 Crystallography RESEARCH

QD 921 Crystal growth RESEARCH

QD 931 Physical properties of crystals RESEARCH

QD 945 X-ray Crystallography RESEARCH

QH 201 Microscopy BASIC

QH 505 Biophysics BASIC

QH 652 Radiation biology STUDY

RA 569 Radioactive substances in relation to public health STUDY

RC 93 Nuclear medicine STUDY

TA 450 Materials engineering, nonmetallics RESEARCH

TA 460 Materials engineering, metals RESEARCH

TK 7800 Applications of electronics STUDY

TL 1050 Astrodynamics STUDY

TN 690 Metallography STUDY