

COLLECTION POLICY STATEMENT: PHYSICS & ASTRONOMY

3. COLLECTION SCOPE (Specific)

3.0 Subject Name: Physics and Astronomy

3.1 Library Selector for this Subject: [Sara R. Tompson](#)

3.2 Primary Academic Unit Served: [Department of Physics and Astronomy](#), USC College of Letters, Arts & Sciences

3.2.1 Academic Liaison: [Professor Richard Thompson](#)

3.2.2 Degrees/Certificates Granted by Primary Academic Unit:

Undergraduate Degree Programs:

Bachelor of Science - Physics, Physics/Computer Science, Biophysics, Physical Science.

Bachelor of Arts - Physics

Minors - Physics

Graduate Degree Programs:

Doctor of Philosophy – Physics

Master of Science – Physics

Master of Science – Physics for Business Applications

Master of Arts -- Physics

The graduate degrees are under the jurisdiction of the Graduate School. The Ph.D. degree requires satisfactory completion of a minimum of 14 courses, excluding dissertation and directed research courses. All students in the Ph.D. program must pass the departmental screening exam at a superior level. The qualifying examination must be attempted not later than during the 5th semester. This exam contains a written and an oral part. The written part consists of a critical review by the student of a published work selected by the guidance committee and of a research proposal prepared by the student on the area on research and dissertation. The oral part expands on the written part. The dissertation is expected to be extensive description of original research carried out by the student and it must be defended in a final oral examination.

Master's degree program also requires a Theses or dissertation. This is monitored by a committee of tenure-track faculty, at least two of whom must be from the student's home department.

Dual Degree Programs: These offer graduate students the opportunity to complete concurrently requirements for two degrees. All requirements for this dual program must be completed so that both diplomas can awarded at the same time. These can be sponsored by two different departments.

A minimum of 20 graduate units at USC is required for the master's degree; 24 units for the doctoral degree.

The Post-Docs Program:

Students enrolled in this program participate in advanced directed research, publishing and laboratory experimentation.

3.3 Significant Relationship to USC Strategic Plan/Critical Pathways:

1. Undergraduate Education.
2. Interdisciplinary Research and Education.
3. Programs on the Resources of Southern California and Los Angeles - Arts and Communication.
4. Internationalization.

- 3.4 Treatment of the Subject: To support the curricula and research of the Physics Department, the Library selects important works in Physics focusing on the following subjects: Physics, biophysics, physical science, mathematics of physics and engineering, thermodynamics, electricity and magnetism, quantum mechanics, methods of theoretical physics, statistical mechanics, methods of experimental physics, particle physics, condensed matter physics, solid state physics, quantum field theory, astrophysics and all related titles in applied mathematics.
- 3.4.1 The undergraduate level requirements include courses from the general education requirements. Students may choose electives, which will allow them to obtain a minor from another department while majoring in physics.
- 3.4.2. All prerequisites for upper and lower division majors include courses in the humanities and social sciences, languages as well as the Writing 140 and 340 classes.
- 3.4.3. Special Areas of Research Focus: The Department's research groups are:
- [High Energy Theory](#)
 - [Astronomy](#)
 - [Cosmology](#)
 - [Space Sciences](#)
 - [Laser Physics](#)
 - [Atomic & Molecular Physics](#)
 - Condensed Matter Physics
 - [Computational Condensed Matter Theory](#)
 - [Collaboratory for Advanced Computing and Simulations](#)
 - [Ultralow Temperature Physics Group.](#)
 - [Quantum Nanostructures Group](#)
 - [Nanoelectronics & Advanced Material Innovation \(NAMI\)](#)
 - Computational Physics
 - [Computational Condensed Matter Theory Group](#)
 - [Collaboratory for Advanced Computing and Simulations](#)
- 3.4.4 Collateral Academic Interests: Physics, as most of the basic sciences, is a multidisciplinary subject. It is related in particular to: astronomy, mathematics, earth sciences, philosophy, oceanography, engineering, materials science, and chemistry, especially physical chemistry.
- 3.5 Collection Location: Monographs, serials and indexes are all located in the Science and Engineering Library in SSC/SSL. Older materials are located in the storage facilities. The History of Physics and other social aspects of the subject are located in DML. The philosophy of physics materials are located in Hoose Philosophy Library.
- 3.6 Geographical Coverage and Language Coverage: Primary areas for selection of research materials come from the United States and Western and Eastern Europe. Historical materials published in East Asian countries and some current research areas are also selected. The primary language of selection is in English although translations of classical materials and collections of notables are also collected. These are usually housed in the Special Collections.
- 3.7 Chronological Coverage: Current research with selected historical publications. Current editions of textbooks are useful for the undergraduate courses.
- 3.8 Format Coverage: The primary materials are acquired in the printed formats. These include: Handbooks, textbooks, journals, serials, encyclopedias, dictionaries, indexes, abstracts and tables. Materials in the digital formats include: videotapes, CDROMS, online web based texts, electronic journals, databases, and Internet websites. The "Mechanical Universe" is a set of videotapes, which are housed in the Leavey Library and are used by both the Physics and Astronomy departments.
- 3.9 Specialized Means of Acquisitions: Yankee Approval Plan, Firm orders as recommended by the faculty and librarians, standing orders for serials and periodicals, and gifts and exchanges.

- 3.10 Special Collection Aspects: A number of collected works and individual titles are housed in the Special collections areas, in the Hoose Philosophy Library and in Doheny Memorial Library.
- 3.11 Electronic Resources Aspects: The Physics discipline leans heavily on mathematics, materials science, philosophy, and engineering. The main commercial database is INSPEC (on the Engineering Village 2 platform). Its print counterpart is the Science Index which comes in three series: Series A – Physics, Series B –Computer Science, and Series C – Electrical Engineering. CURRENT CONTENTS is another database, which includes a Physics section. As a multidisciplinary subject, physics literature is also indexed in the Web of Science, Applied Science and Technology, and Chemical Abstracts (SciFinder Scholar).
- 3.12 Out of Scope/Not Collected or Retained. Such materials include the general academic texts, which are usually collected by the Leavey Library and the professional publications – including most conference proceedings, which are excluded from the Yankee approval plan, but can be selected by the liaison and the subject specialist via the notification slips if desired.
- 3.13 Collecting Levels (Detail) Physics (QC 1 – QC 999)
- 3.14 Cooperative Agreements: Through the Institute of Physics (IOP), the American Institute of Physics (AIP), Scitation, Elsevier Science Direct, and we have package subscriptions to selective journals both in print and online.
- 3.15 Desiderata: ...[this iteration of the policy does not include wishlist items, principally because we have been able to acquire most of the journals, and have been able to keep up with new research areas in monographs via the new faculty funds]
- 3.16 Summary Statement: The small group of faculty in the Physics & Astronomy Department at USC is engaged in a broad range of research programs. Working together with their postdoctoral fellows, graduate students, undergraduate students, and visiting scholars, the faculty regularly produce important results in their fields. With research specialties in atomic, molecular, laser, condensed matter, elementary particle quantum electronics and space physics, they lean heavily on the library resources for their research and teaching. Their relationship with the Provost's Strategic Plan is evident, especially in the 4th category of "Internationalization". Besides the faculty involvement in projects in the Los Angeles County, the Chair of the Department is a regular visiting scholar at universities in countries on the East Pacific Rim. The Department also has visiting scholars from international universities.
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