

Assessment of Library Collections
Academic Program Review

Computer Science

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The nine appendices to this report are not on the web site of the Office of Planning and Institutional Effectiveness—but may be requested from the library.

While the library will go forward, as annual budgets allow, with acquisitions recommendations of program reviews, a more durable approach is the comprehensive collection development plan set as a university Millennium Strategic Goal.¹ That planning process will broaden the library's collaborations with each program, identify resources needed to build research-level collections, and provide a framework for long-range budgeting. This report lays some of the groundwork.

SUMMARY

Books. Through its book approval plan, the library receives in computer science all university press titles; and all guidebooks to particular hardware, software, systems, etc. by trade publishers. The plan includes for all disciplines books on the *history of science* or *contemporary social or public policy aspects of science*.

Journals. The library has 295 titles (208 print, 87 online) funded under computer science. The library's holdings are compared against the core (citation-ranked) journals in the seven fields of computer science in the *Journal Citation Reports (JCR)* database.

Online Resources. The library's collections of databases and other online resources, about 275 in number, include the basic ones in computer science but may be expanded, as shown below.

Collection Development Proposals. Four online resources are described for the faculty's consideration: ACM's *Online Guide to Computing Literature* (\$1,200); ACM's *Computing Reviews* (\$3,900); IEEE's *Information Technology Library* (\$24,995); and the complete *IEEE/IEE Electronic Library* (about \$60,000).

¹ Cross-functional plan for graduate education, goal 3 at <http://www.fiu.edu/~pie/>.

Faculty Decisions. The faculty should (a) decide which titles on the seven journal spreadsheets are high or medium priorities for acquisitions; (b) make prioritized recommendations on the four online resources described; and (c) advise the library on any other resources or services needed for research-level collections.

Postscript. The faculty’s response to this report singled out *bioinformatics* as a focal-point for collection development. Accordingly, the book approval plan profile was broadened to include automatic receipt of trade-publisher works in that field (university-press coverage was already in place). An analysis to identify needed journals on *bioinformatics* is under way.

MAIN REPORT

SCOPE. This report for Computer Science focuses on journals and online resources. A few other categories of library support—books, geographic information systems, resource-sharing networks, and reference services—are briefly described.

Eight spreadsheets are appended. The first seven are journal collections evaluations. The last spreadsheet, a comparison of benchmark library budgets—with a ninth appendix, a graph of inflationary pressures in the scholarly communication system—puts the financial situation in perspective.

METHOD. As a rule, it is not feasible to make a comprehensive assessment of “all” library resources that may be relevant to a particular program or literature, given the interdisciplinarity of programs and literatures alike, as well as library budget lines. To structure this situation, subject literatures and library collections must be bounded in certain ways, as described in the sections below. A principal method is to focus on the core journals of a given field according to citation-impact rankings.²

BOOKS

Through its book approval plan, the library receives in Library of Congress subject class QA (computer science, mathematics and statistics) all university press titles; and all trade publisher guidebooks to computer hardware, software, systems, etc. Cross-disciplinary fields—in business (HF5548), technology (T385), and electrical engineering (TK5105)—are also covered.

² The core science (and social science) titles are ranked in the *Journal Citation Reports* database. Citation-impact analysis is based on Bradford’s Law, that most of the important papers in a given field appear in a relatively small set of journals. See Hans Verner Holub et alia, “The Iron Law of Important Articles,” *Southern Economic Journal* 58 (1991): 317-28.

The library also receives for all disciplines (a) books on the *history of science* or *contemporary social or public policy aspects of science*, and (b) adult-level titles reviewed in either *The New York Times Book Review* or the *Times Literary Supplement*.

Overall, in FY02, 275 books in QA as a whole were sent on approval—137 in computer science (with another 111 in mathematics and 27 in statistics)—at an aggregate cost of \$17,066.

Online Books. Of the 27,280 *NetLibrary* electronic books owned by the library, 1,018 titles have *computer science* as a keyword descriptor. The library does not make title selections of its holdings but relies on bulk acquisitions through a regional network. The *NetLibrary* portal is at <http://www.fiu.edu/~library/elibrary/ebooks.html>.

JOURNALS

The journals fund for Computer Science is \$76,290 (\$74,999 for University Park and \$1,291 for Biscayne Bay). It covers 295 titles: 208 print and 87 online (with 22 titles having duplicate print and electronic editions).

Since it is not possible to identify all of the journals relevant to a field (given interdisciplinarity), the question is whether the library is missing needed or important journals. *Need* is based on local demand, according to interlibrary loan data.³ *Importance* is measured by citation-impact rankings or other indicators of core literatures. Seven core fields are used in this report.

<u>Spreadsheet</u>	<u>Field</u>	<u>FIU Holdings</u>	
• 1	Artificial Intelligence	36 of 72	50%
• 2	Cybernetics	9 of 18	50%
• 3	Hardware & Architecture	29 of 45	64%
• 4	Information Systems	37 of 77	48%
• 5	Interdisciplinary Applications	54 of 76	71%
• 6	Software Engineering	53 of 75	71%
• 7	Theory & Methods	46 of 71	65%
		264 of 434	61%*

The 61% overall coverage figure is not likely a significant measure because it does not take into account the key criterion of *local need*. Actually, the citation-rankings approach, with its focus

³ To assess local demand, the library identified the journals most often requested through interlibrary loan over the past three years. In terms of access-versus-ownership economics (royalty payments compared to subscription prices), 18 titles of the total set of 135 proved to be more cost-effective to own. Those subscriptions began January 2003. None of the 18 was in computer science. On that measure, the collections in computer science are cost-effective.

on established journals, has a somewhat conservative bias in that it tends to exclude newer titles that, though lacking a certain impact in the scholarly system, may be relevant to campus interests. Conversely, some titles with impressive citation-impact factors may not fit campus interests.

Once the School of Computer Science has identified on the spreadsheets which of the titles not in the library's collections are of high priority, medium priority, or no interest, the library will make cost estimates for the collection development plan.

ELECTRONIC RESOURCES

The library's collections of databases and other online resources, about 275 in number, include the main ones in computer science: *Computer & Information Systems Abstracts*; *Internet & Personal Computing Abstracts*; *EI Compendex*; *INSPEC*; *MathSciNet*; and *Applied Science & Technology*. See <http://www.fiu.edu/~library/subjects/computersc.html>.

The library also has online-journal packages produced by the Association for Computing Machinery (ACM), the Institute of Electrical and Electronics Engineers (IEEE), and the American Mathematical Society (AMS).

Collection development proposals.

1. ACM's *Online Guide to Computing Literature*, an index to all types of work in computing, including journals, proceedings, books, technical reports, and theses. Annual subscription would be **\$1,200**. See <http://portal.acm.org/guide.cfm>.
2. ACM's *Computing Reviews*, which provides full text reviews of computer science literature. Annual subscription would be **\$3,900**. See <http://www.reviews.com/home.cfm>.
3. IEEE's *Information Technology Library*, which includes some 1,500 conference proceedings and selected periodicals in computing and related disciplines. Annual subscription would be **\$24,995**. See <http://www.ieee.org/products/onlinepubs/itel/itel.html>.
4. The complete *IEEE/IEE Electronic Library (IEL)*, to expand the library's IEEE online-journal package to include IEE journals, as well as IEEE and IEE conference proceedings. Annual subscription would be about **\$60,000** above what FIU now pays for the IEEE package of online journals. See <http://www.ieee.org/products/onlinepubs/iel/iel.html>.

Given their cost, acquisition of the latter two online packages (#3-4) would require discussions that go beyond the scope of this report. A useful starting point might be for the faculty to decide if they favor building the journal collections before seeking to acquire conference proceedings.

OVERVIEW for COLLECTION DEVELOPMENT

The library's collections in computer science are in good shape in terms of *core* resources. Yet, the essential matter is whether these collections are commensurate with the faculty's needs—and, concomitantly, with the university's aim to have research-level library resources and services in appropriate fields. This report, to be supplemented with the recommendations of the faculty, lays the groundwork for the collection development plan in computer science.

The book approval plan, covering all university-press titles and trade-publisher guidebooks, is reasonably comprehensive, as well as cost-effective.⁴

Journal collections are always difficult to assess in the sciences, given the high specialization and cost of many titles. The only reliable method to build research-level collections is for the faculty to make prioritized recommendations from the several citation-ranked lists. Such review will be the basis of the library's long-range collection development plan for computer science.

Databases and other online resources call for the same kinds of advices. While such resources in computer science may warrant expansion, it is doubtful whether the four products suggested for consideration, two of them quite costly, would all be of equal utility. And, as noted above, the online resources should be compared not only against each other but also against the faculty's recommendations for additional journals.

OTHER LIBRARY RESOURCES and SERVICES

Geographic Information Systems / Remote Sensing Center

Jennifer Fu, Head <http://gislab.fiu.edu/>.

The Geographic Information Systems /Remote Sensing Center (Green Library) provides computerized mapping and image-processing resources and services. The user groups tend to be in the fields of urban affairs and public health, biology, computer science, environmental studies, architecture, earth science, international studies, and civil and environmental engineering.

Principal resources and services include LandsAT imagery; USGS color-infrared aerials; high resolution (1-foot) panchromatic aerials photographs of Miami-Dade County; land cover, land use, vegetation, hydrological data, and digital elevation models (IHC's LIDAR data); Decennial Census data and associated TIGER/Line Files (both online and print); property parcel and appraisal data; as well as commercial mapping and image processing software (e.g., ArcGIS and ERDAS Imagine).

⁴ About 1,850 books are published in computer science each year, of which 5% (90-100 titles) are university-press titles with an aggregate cost of about \$8,000. The other 95% are trade imprints; they would have an aggregate annual cost of about \$115,000.

The center maintains broad collections of demographic and social-economic data sets of South Florida counties and municipalities. It provides consulting services on geo-statistical analysis, image processing, data modeling, 3d visualization and geo-spatial metadata creation. Scanning and digitizing of large-format maps, along with large-format, high-speed plotting services, serve research units universitywide.

Resource-Sharing Networks

The library belongs to several general consortia for interlibrary lending: the State University Library Consortium, Southeast Florida Library Information Network, Southeastern Library Network, and Association of Southeastern Research Libraries. For foreign resources, the Center for Research Libraries (<http://www.crl.uchicago.edu//index.html>) is important.

Government Documents

University Park campus is a selective (partial) Federal depository. In addition, it receives a broad range of publications from Florida state and local governmental agencies. Two milestones were reached in 2001, when FIU was granted European Documentation Center status by the European Union (the only such center in the state, other than the University of Florida) and full United Nations depository status. See <http://www.fiu.edu/~library/internet/subjects/govern.html>.

Reference Services

Basic reference services are provided on site, by e-mail, and in real-time chat service in English and Spanish (<http://www.fiu.edu/~library/services/asklib.html>). An information literacy program serves students' library-instruction needs at the lower division level, and targets core classes for instruction sessions at the upper division and graduate levels. Consultations for research projects are a faculty- and graduate-level service.

BROADER PERSPECTIVES

Benchmark Institutions and Subject Literatures

From the broader perspective of benchmark institutions, challenges of developing research-level collections are evident. As [spreadsheet 5](#) shows, the library's budgets are just average to those of other universities in the \$10M total library budget range and comparable to only a few of the universities selected by Office of Planning and Institutional Effectiveness for such purposes.

Scholarly System and the University

On the broadest level, prospects for collection development following any program review are conditioned by prolongation of inflation in the scholarly system at large. As the accompanying graph shows, since the mid-1980s journal expenditures for research libraries on the whole have

increased 210% and book expenditures 66%. The decline of library book acquisitions across the nation has sparked commentaries for over a decade—with a restructuring of sorts for university presses.

Apart from inflationary pressures “out there,” collection development may become increasingly problematic as a campus resource-allocation process, in face of increasing research and curricular interests, program diversification, and the university’s goals for a broad expansion of new Ph.D. programs. Thus, it is of fundamental importance for each program to advise the library on the specific resources and research services that will best serve the faculty’s needs. While the library endeavors to stay abreast of new markets and opportunities in the scholarly system, collection development is an area of mutual knowledge and concern.