COLLECTION DEVELOPMENT POLICY STATEMENT

BIOMEDICAL ENGINEERING

Date: October 2006
Collection Development Librarian: Cynthia Holt

I. PURPOSE/PROGRAM SUPPORT

The collection in biomedical engineering supports the curricular and research activities of the Biomedical Engineering option offered in the School of Engineering and Applied Sciences. Material is acquired to support teaching at the undergraduate level, teaching and research for graduate study, and faculty research interests. Biomedical Engineering is designated an area of academic excellence by the University.

The department supports study leading to the undergraduate degrees of the B.S. in Biomedical Engineering, B.S. in Computer Science, B.A. in Computer Science, and B.S. in Biology with a concentration in Bioinformatics.

The B.S. in Biomedical Engineering has the following areas of study: Bioinformatics, Biomechanics, Instrumentation, and Tele-Medicine.

The B.S. and B.A. degrees in Computer Science have the following areas of study in biomedical engineering: Bioinformatics and Biomedical computing.

Students in the B.S. in Computer Science program must complete a one-year Senior Design project.

The program also supports study leading to the graduate degrees of the M.S. in Electrical Engineering, M.S. in Genomics and Bioinformatics, and Ph.D. in Electrical Engineering.

Graduate students specialize in biomedical engineering in both of the electrical engineering degrees. Graduate students in the Genomics and Bioinformatics Program can choose between the biology or computer science tracks. The M.S. in Genomics and Bioinformatics is cooperatively offered by the Departments of Microbiology & Tropical Medicine (School of Medicine), Biochemistry and Molecular Biology (Columbian School of Arts and Sciences), and Computer Science (School of Engineering and Applied Science).
Doctoral students must write a dissertation. Masters students do not have a dissertation requirement in the electrical engineering programs. Students in the Genomics and Bioinformatics Program have the option of preparing a final thesis by conducting research at GWUMC, Children’s National Medical Center (CNMC), or at The Institute for Genomic Research (TIGR).

Current areas of faculty research include:

- Use of simulation and visualization for surgical training, planning, and computer guidance
- Imaging, visualization, and analysis of pediatric brain tumor
- Medical imaging and image analysis (including multimodality image registration)
- Processing and transmission of images
- Use of large-scale computer simulations of blood flows for the analysis of bio-acoustic signatures (“smart” bio-acoustic sensors)
- Development of new techniques for breast cancer diagnosis
- Medical signal processing, medical ultrasound, and medical instrumentation
- Remote health monitoring technologies and infrastructures
- Human performance (e.g. use of eye tracking for gauging attentiveness of individuals engaged in monitoring tasks)
- Computer graphics in biomedical engineering
- Bioinformatics
- Techniques to improve the efficiency of high performance computers on problems such as protein folding and bioinformatics
- Use of supercomputer technology to model the protein folding problem
- Organization of the genome searching based on a technique involving fault-tolerant indexing

Faculty carry out multidisciplinary basic and applied research through the Laboratory for Advanced Computer Applications in Medicine (SMHS & SEAS), the Biomedical Engineering Laboratory, the Institute for Computer Graphics, and the Institute for Medical Imaging and Image Analysis.

**Students and Faculty**

Four full-time faculty are associated with the program which has an enrollment of 98 undergraduates and an indeterminate number of graduate students, since it is an area of concentration but not an official program at the graduate level.

**II. AREA RESOURCES**

A. Washington Research Library Consortium (WRLC)

The collections of the Washington Research Library Consortium (WRLC) libraries are available for use by students and faculty of GWU either on-site or
through the Consortium Loan Service. George Mason offers masters and doctoral
degrees in Bioinformatics. Catholic University offers masters and doctoral
degrees in Bioinformatics and Intelligent Information Systems as well as
MicroOptics and BioImaging. Reference and referral tools for collections in the
area's major libraries are provided in Gelman's collections.

B. Other area resources

Faculty and graduate students have access and borrowing privileges at the
Chesapeake Information and Research Library Alliance (CIRLA) libraries.
CIRLA libraries, such as the University of Maryland and Johns Hopkins
University, have research level collections in bioengineering and biomedical
engineering and are accessible to all GWU students and faculty.

III. GENERAL COLLECTION GUIDELINES

A. Language

The primary language of the collection is English. Translations and major works
in key research areas not available in English are acquired selectively.

B. Period of Coverage

Emphasis is on current scholarship.

C. Dates of Publication

Materials are considered as they are published. There is no systematic
retrospective purchasing activity. Most items in the collection have been
published within the last 40 years.

D. Geographical

Although no areas are excluded, the emphasis is on research and projects in
industrialized nations.

E. Treatment of Subject

Emphasis in on upper undergraduate, graduate and research level materials.
Monographs supporting study and research in broad topics as well as narrow
subjects are selected for the collection. Lower division textbooks are ordinarily
not purchased. Books on techniques and upper division and graduate textbooks in
English are purchased selectively; lower division textbooks are ordinarily not
purchased. Accompanying instructors' manuals and students' solutions manuals
are not acquired.
Journals are of primary importance and subscriptions constitute more than 94% of all expenditures for biomedical engineering materials. Other serials, such as proceedings and transactions of conferences, symposia, etc., are acquired selectively.

Standards, technical reports, and collections of previously published articles are selectively acquired, primarily in response to individual requests. Programmed instruction materials on biomedical engineering subjects, laboratory manuals and workbooks for professional engineers' examinations are not acquired.

Non-GW dissertations, biographical works, and popular works are acquired selectively.

IV. DESCRIPTION OF MATERIALS AND FORMAT

Materials may be acquired in several formats: print, machine-readable files, videotapes, Internet subscriptions, microforms, CD-ROM, etc. The bulk of the collection is still print but periodicals are being increasingly purchased as online subscriptions. Software is acquired only as it accompanies print material. GWU theses and dissertations are acquired and given full cataloging. Materials in other formats are not normally acquired.

V. SPECIAL CONSIDERATIONS

There is a reliance on materials purchased for Computer Science, Electrical and Computer Engineering, Biology, Physics, and, to a lesser degree, on general engineering materials. Refer to those policy statements for details.

VI. DUPLICATION

In general, duplicate copies of a title are not purchased, the operating principle being to purchase more titles rather than extra copies of individual titles. However, if demand warrants, e.g. reserve readings, duplicate copies are bought on a case-by-case basis. Additional copies of titles may be accepted as gifts.

VII. SELECTION METHODS

A. Selection of new materials generally occurs through 5 sources:

1. The approval plan through Blackwell’s Book Services is monitored on a regular basis to ensure the profile meets our needs. Any changes in the curriculum, as indicated through library impact statements, are examined against possible changes in the approval profile.

2. Firm orders are initiated by the collection development librarian. Journals in the field are scanned for relevant reviews. Firm order requests from faculty and students are reviewed and approved by the collection development librarian.
3. Standing orders, memberships and serial requests are initiated by the collection development librarian.

4. Gifts are accepted under the same guidelines as other acquisitions. They must fit the criteria spelled out in this collection development policy.

5. The Library participates in the Federal Depository Library Program; collection development librarians review documents available through the U.S.G.P.O. for access or inclusion in the collection.

B. Deselection

The deselection process can be initiated by Gelman staff, by faculty, or by the collection development librarian. Final decisions on deselection are made by the collection development librarian. Items are checked for general condition, availability of newer or replacement editions and the continuing value of the content. Due to the reliance on current information in the computer science field, older editions and texts are generally not retained in the collection.

VIII. LIBRARY OF CONGRESS CLASSIFICATION

Materials for biomedical engineering are located within several areas of the Library of Congress classification including R 855-859.7 (Biomedical Engineering), RC 78.7 (Diagnostic Imaging), and R 895-920 (Medical Physics).