

III. The Faculty Member as Scholar and Researcher

Professors, guided by a deep conviction of the worth and dignity of the advancement of knowledge, recognize the special responsibilities placed upon them. Their primary responsibility to their subject is to seek and to state the truth as they see it. To this end, they devote their energies to developing and improving their scholarly competence. They accept the obligation to exercise critical self-discipline and judgment in using, extending, and transmitting knowledge. They practice intellectual honesty. Although they may follow subsidiary interests, these interests must never seriously hamper or compromise their freedom of inquiry. (Code of Professional Ethics for the Faculty)

A. Support for Research and Scholarly Work

1. Library System

The Library System provides support for teaching and research through collections and services in the W.E.B. Du Bois Library, science libraries, Music Reserve Lab, and its web site, the UMass Amherst Digital Library. An extensive collection of electronic services and resources is available 24 hours a day at <http://www.library.umass.edu>.

The W.E.B. Du Bois Library houses materials in the social sciences and humanities as well as the Government Documents, East Asian, Map, and Law Collections, and Special Collections and Archives, where the W.E.B. Du Bois Collection is located. A reserve reading room and multimedia reserve collection are located on the third floor. Most of the science collection is found in the Biological Sciences Library in Morrill Science Center, and the Physical Sciences and Engineering Library in the Lederle Graduate Research Center.

Present library holdings number more than 5.7 million, including books, scholarly journals, newspapers, maps, musical recordings, and government documents. Numerous periodical indexes and full-text databases are available electronically. A current UCard, the University photographic I.D., serves as a library card.

The Five College library catalog provides electronic access to the libraries at the University and the Four Colleges (Amherst, Hampshire, Mount Holyoke, and Smith colleges). It is the current record of the collections and provides a variety of ways in which to access library holdings information.

The University Library System is a depository for U. S. government publications; it also receives several categories of publications from the United Nations and houses publications of the Commonwealth of Massachusetts. The Physical Sciences and Engineering Library is an official U.S. Patent and Trademark Depository Library.

Reference librarians are available in person, online, and by telephone to answer questions and provide assistance in using the collections. A virtual reference service provides 24/7 reference librarian assistance in real time via the web. The librarians can supply information on course-related library instruction, database searches, interlibrary loan, document delivery, and the services available through the University Library System's membership in various library

consortia. Librarians, in consultation with interested faculty, offer group instruction sessions in the Library's electronic classrooms.

Faculty members interested in particular aspects of the library collections are invited to contact the appropriate subject specialist librarian. The librarians serve as liaisons between the library and the academic departments and programs. Enrichment of library resources and facilities is the mission of the Friends of the Library, an organization open to all who share these concerns.

Through Five College cooperation, faculty, students, and staff at the University have direct borrowing privileges at the main library of each institution. A messenger service makes daily deliveries of interlibrary loans among the Five College libraries.

2. Office of Information Technologies

The University offers centralized computing and telephone services through the Office of Information Technologies (OIT). Many of the areas within OIT provide services directly to faculty, staff and students. Others work in the background to keep these resources reliable and up-to-date.

The OIT Web site (<http://www.oit.umass.edu>) provides access to online documentation and contact information for all OIT services. Specific information about OIT services for faculty is available at <http://www.oit.umass.edu/guides/faculty.html>

OIT Computing and Telecommunications Services

OIT Accounts are available at no extra charge to the faculty, students and staff on the UMass Amherst campus. All matriculated students are required to activate their OIT Account and use their OIT email (a.k.a. UMail) to receive official University communications.

The following services are included with every OIT Account:

- Access to the Internet on campus via Ethernet from all public classrooms, all OIT computer classrooms, and most campus buildings. There is also an ever-growing number of buildings on campus with wireless access. From off campus, faculty can connect to the Internet via OIT's high-speed modem bank.
- Email service is provided through OIT's IMAP-based UMail system. Features of UMail include enhanced security, access to email via a browser (UMail on the Web), and spam filtering.
- Personal Web sites are available to all faculty, staff and students. These sites have 100 MB of file space that may be used to store Web pages or other files. Faculty can also request additional Web sites for each of the courses they teach (see "Public Course Sites" below).
- Free anti-virus software is available for installation on computers. OIT also scans incoming email for viruses, blocking infected messages.
- Access to computers in public computer classrooms and email kiosks. Classrooms and kiosks are located in LGRC, the W.E.B. Du Bois Library, and many other buildings across campus. Faculty may reserve a computer classroom if students need to access to computers during class time.
- Access to UMass WebCT courses. The OIT Account provides access for faculty and students using the WebCT course management software.

- Remote access to library databases. The OIT Account provides access from off-campus to the extensive collection of online databases and journals provided by the library.
- UNIX shell & applications (OITUNIX). Faculty who are interested in working in the UNIX shell environment or running host-based applications, can access OIT's UNIX systems via SSH (Secure Shell).

Telecommunications services do not require an OIT Account. OIT Telecom maintains the campus phone system and provides support for people using campus telephones, the voicemail system, long distance service, and cellular communication services. Details about telecommunications services are available at: <http://telecom.oit.umass.edu/>

Getting Help with Computing and Telecommunications Services

After the OIT Web site, the OIT Help Desk is the next place to go to get help with computing services and supported software. Help Desk Consultants are available for walk-in, telephone and email consultations and are backed up by a sophisticated "trouble-ticket" system that tracks your requests and ensures that they are resolved. Any questions that can't be answered by Help Desk Consultants will be referred to other specialists in Software Support, Hardware Support, LAN Support or one of the other areas in OIT. Access the Help Desk online through <http://www.oit.umass.edu/help.html>.

For help with telecommunications services, "Telephone User Group Representatives" (TUG Reps) are volunteers that act as liaisons between departments and Telecommunication Services. TUG Reps help with issues such as telephone problems or requests for additional services. To find the TUG Rep for a specific department, go to: http://telecom.oit.umass.edu/tug_rep/

Instructional Technology Services for Faculty

Faculty can get specialized help from OIT when they are incorporating technologies into their teaching and research by contacting Academic Computing (www.oit.umass.edu/academic/).

Academic Computing provides direct support to faculty in the following areas:

- OIT Computer Classrooms can be reserved faculty need their students to have access to computers during class time. There are eleven classrooms on campus; each can accommodate about 20 students. Both Macintosh and Windows platforms are available. The standard software suite in the classrooms includes common packages as well as specialized software See www.oit.umass.edu/classrooms/ for more details.
- OIT's Video Conferencing Classroom can be connected to similar classrooms in the Five College system or anywhere in the world with compatible equipment.
- WebCT Course Sites use the WebCT course management system to simplify the process of posting course-related content on the Web. WebCT sites can also include online learning activities such as quizzes, bulletin board discussions, and areas where students can post their own work. Students use their OIT Account to log in to WebCT courses. WebCT rosters are automatically updated through the registrar.
- Public Course Sites are posted on the OITUNIX server using standard HTML software (such as Dreamweaver). Each course can have 100 MB of space for a Web site. Academic Computing provides templates as a jump-start on site design.
- Access to equipment is available through Academic Computing's Instructional Media and Faculty Video Labs. Standard scanners, slide scanners, video editing hardware, and specialized software can be used by faculty developing materials for use in their courses and research. Consultants are available if faculty need help or training.

Getting Help with Instructional Technology

- Consultants in the Instructional Media and Faculty Video Labs are available to help with many aspects of content production: scanning pictures or slides, using image files, developing course sites in Dreamweaver or WebCT, creating PDF files, video editing and other topics. Faculty can make an appointment by calling 545-2823 or emailing instruct@oit.umass.edu.
- Special projects and consulting are available for faculty interested in learning more about a new teaching technology or want some help developing a technology-based tool for their teaching or research. The staff at Academic Computing can help develop ideas, evaluate technology, and make sure that the technology does not interfere with central pedagogical goals.

OIT Behind the Scenes

There are other areas of OIT that do not have a public presence, but work hard to make sure everything works. The Administrative Computing Support Organization (ACSO) supports administrative functions for the campus, including the development and maintenance of the SPIRE/Peoplesoft SIS software. Network Systems and Services (NSS) manages and operates campus-wide data network systems and services.

3. Engineering Computer Services

The Engineering Computer Services (ECS) is a facility that provides computer support for the instructional, research and administrative needs of the College of Engineering. ECS currently provides these services to Engineering faculty, staff, and students (both graduate and undergraduate) who have diverse needs in research, coursework, and administrative computing.

The ECS facility was founded in 1980 with a gift from Digital Equipment Corporation (DEC) of a VAX 11/780 computer. Since its beginning, ECS has experienced a tremendous amount of growth. It now provides hardware, software, and network support for the computing needs of the College.

Computing facilities are now integral throughout the College of Engineering's seven main buildings. These facilities communicate through the Engineering Local Area Network to the main ECS computer facilities which include Unix and Microsoft Windows servers. Centralized Unix computing is provided by Sun and Intel-based computers running the Solaris, Linux, and OpenBSD operating systems. A full time staff of 13 provides system management consulting and maintenance for all of the ECS computing systems as well as providing service to the many departmental and faculty owned computers. Students have access to PC and workstation labs, both during the day and evenings. Internet access allows the students to explore the World Wide Web, and use e-mail.

Two terminal rooms, a workstation area and a PC classroom have been established by ECS to provide students with access to computer facilities. These areas are located in the Marston and Engineering Lab buildings. The workstation area houses 10 Sun SPARC systems to support the VLSI program. This lab is used for VLSI design

instruction and general workstation access. The terminal rooms are opened a minimum of 12 hours per day, six days a week (nine hours on Saturday) for use by Engineering students. Access to laser printers, and color printing are available from these areas.

A PC classroom was established in 1987. This area was recently upgraded and now contains fortyeight Pentium III based PCs and two laser printers. All PCs in the ECS classroom and public terminal rooms are connected to the Engineering Local Area Network and are served through three Sun Solaris file servers. The classroom is available for general use nights and weekends and for scheduled instructional use during the day.

4. University of Massachusetts Press

The University of Massachusetts Press is the book publishing arm of the University. Its primary mission is to publish significant works of scholarship developed by the faculty and other scholars and writers. The Press editorial staff also serves as a source of information and advice to faculty members who are seeking guidance as to how and where to place their manuscripts. Since its inception in 1963, the Press has sold more than one million individual volumes. Today it has over 900 titles in print and produces and markets more than forty new books annually. The imprint of the Press is governed by a faculty editorial board, appointed by the Faculty Senate. Additional information can be found at www.umass.edu/umpress.

B. Support for Scholarship and Research Through the Office of the Vice Provost for Research

1. Internal Grants Program

The Internal Grants Program of the University of Massachusetts Amherst provides approximately \$450,000 annually for the purpose of stimulating and developing research and scholarly activities. These monies are made available through multiple peer reviewed competitions throughout the year. The five grant programs are: the Faculty Research Grants, the Biomedical Research Support Grant, the Healey Endowment Grant, the Public Service Endowment Grant, and the Faculty Research Grant for Travel. The first three of these support general purpose research, while the latter two are directed at more specialized activities.

2. Equipment Matching Grant

Many research equipment grant programs have requirements concerning an institutional matching contribution toward the purchase of equipment. The Vice Provost maintains a fund for the purpose of providing support to equipment grant programs that require some form of matching. Requests for matching funds are made at the time of proposal submission and are coordinated as part of the Internal Processing Procedure.

3. Proposal Development Services

In order to enhance faculty success in securing sponsored research funding, the Office of Research Affairs (ORA) offers a seminar series on Successful Proposal Development, which introduces the skills necessary for achieving success in grant development. The seminar is offered once each semester to all faculty. Registration and scheduling information are

announced each semester. In addition to the seminars, ORA offers individual consulting services in the areas of sponsor identification, idea development, grant planning, and proposal editing.

4. Sponsor Identification

Basic grant development services center on advising faculty about research funding opportunities. This general activity of sponsor identification consists of two tasks. The first is the recommendation of funding programs in response to unsolicited project ideas. The second is alerting and targeting groups of specific faculty in response to proposal solicitations. Critical to accomplishing these tasks are computer inventories of faculty and sponsor research interests, which comprise the primary information resources of the ORA. A discussion of these systems and their applications follows.

a) Research Interest Profile System

ORA utilizes the Research Interest Profile System (RIPS) to alert faculty to special grant opportunities. RIPS is a catalogue of faculty research interests and specialties as well as recent publication and research activities. In addition to facilitating the distribution of grant announcements, the RIPS information is used to prepare an annual Research Specialty Index to the faculty. The index is distributed both internally and externally to help promote interactions based on common research interests. All faculty are invited to complete the RIPS Questionnaire, which is available from ORA.

b) Research Newsletter and Supplements

The primary publication for the announcement of grant programs is a newsletter, the *Research News*, compiled monthly from an extensive inventory of sponsoring programs. This database is composed of all continuing programs that have historically supported UMass projects or have been deemed highly suitable for project support. The newsletter is produced based on pending deadlines and areas of concentration, with separate issues in Physical and Life Sciences, Social and Behavioral Sciences, and Humanities and Fine Arts. Programs of a non-recurring or specialized nature are announced through Newsletter Supplements, which are routinely disseminated using the Research Interest Profile System. A no-cost subscription to Research News may be obtained from ORA, tel. 545-3428.

5. Institutional Review and Processing

Before a completed proposal can be submitted to a sponsoring agency, it must be reviewed within the University for compliance with University and agency policies.

a) Office of Grant and Contract Administration

The Office of Grant and Contract Administration (OGCA) is the designated office for sponsored project administration. Providing administrative support services to campus researchers and directors of sponsored projects, OGCA is responsible for the review, processing and submission of proposals to external sponsors. In collaboration with the campus fiscal services, it ensures conformance with both University fiscal management practices and sponsor's regulations. OGCA is the designated representative authorized to execute contractual agreements and legally bind the institution for sponsored projects.

Indirect Costs

Indirect costs are real costs incurred while performing sponsored activities. These costs are incurred for common or joint objectives and therefore cannot be identified readily and specifically with a particular project or activity. At educational institutions such costs are normally classified under the following indirect cost categories: depreciation and use allowances; general administration and general expenses; sponsored projects administration; operation and maintenance expenses; library expenses; departmental administration and student administration expenses; and student administration and services. Guidelines for the determination of direct and indirect costs are stated in OMB Circular A-21. Current rates are available in the OGCA Fact Sheet. Any variance or waivers must be approved in writing by the Vice Provost for Research.

Cost Sharing/Matching Funds

Some sponsor guidelines or regulations require the Institution to contribute to the total cost of the project. Normally this will be in the form of contributed academic salary, associated fringe, and indirect costs. Cost sharing (either mandatory or voluntary) in a proposal is considered a formal commitment, thus it must be documented and is subject to audit. According to OMB A-110, all cost sharing and matching must be verifiable from the Institution's records.

b) Institutional Review Boards

Regulatory Committees

The University has established a series of regulatory committees to ensure the proper handling of hazardous materials and to guide faculty through the regulatory process. These committees include the Radioisotope Use Committee, which oversees the use of radioactive materials as required by the federal government, the Chemical Hazards Committee, the Biological Hazards Committee, and the Recombinant DNA Biosafety Committee.

Human Subjects

All relevant federal guidelines for the protection of human subjects are strictly enforced at the University. The Institutional Review Board (IRB) for Human Subjects Research Review includes faculty, staff, and external members.

Animal Research

The Director of Animal Care and Campus Veterinarian is responsible for ensuring compliance with all federal and state regulations covering the use of laboratory animals.

6. General Research Services

The University maintains a variety of services in support of research. Some of these are very general and some are extremely specialized. Some of the specialized services offered, in addition to the University Computing Center, are discussed below.

a. Scientific Glassblowing Laboratory

Glassblowing services for research projects are available for faculty of all departments of the University. The glassblowing laboratory assists the research community with the design, fabrication, and repair of scientific glassware.

b. Microanalysis Laboratory

The Microanalysis Laboratory provides for the analytical testing of materials for their elemental constituents. A list of standard analyses and their price is available from the lab.

c. Digital Photographic Research Service

The Digital Photographic Research Service (DPRS) provides an array of custom photographic services to those in the University community who are involved in the creation of computer-generated digital imagery. The DPRS has become a center of expertise for the production of color and black and white image products from a wide variety of graphics and image processing computer systems.

d. Cartographic Information Research Services

The Cartographic Information Research Services (CIRS) assists researchers in locating various kinds of maps and other cartographic information from federal, state, and local government agencies and private companies. CIRS staff assist users in the selection of appropriate sources and arrange for delivery to the user.

e. Central Microscopy Facility

The Electron Microscopy (EM) Facility provides a complete range of research services in light and electron microscopy, and computer image processing, with special emphasis on biological applications. It also provides increasingly important services through advice and assistance in preparing grant proposals and through a flexible training program for clients wishing to use the instruments.

f. Environmental Health and Safety

Environmental Health and Safety provides technical information, training resources, and other safety services to faculty, employees, and students at the University. The biological and chemical safety program monitors laboratory facilities and informs researchers on risk assessment and recommended procedures for safe handling of chemical and biological hazards. The radiation protection program oversees all uses of radioactive material on campus. The hazardous waste management program provides comprehensive pollution control services including collection, storage, and treatment of hazardous waste.

g. Environmental Institute

The Environmental Institute assists faculty members and departments in developing and administering environmental research and training programs sponsored by public and private sector organizations. A primary role of the Institute is to provide public agencies and private firms access to University research and training expertise that involves combinations of academic departments, schools, and colleges. It also assists faculty members and departments in preparing and subsequently administering proposals for projects in which the size and complexity of the effort calls for administrative support not available at the academic department level. The Environmental Analysis Laboratory (a part of the Water Resources Research Center within The Environmental Institute) is a state-certified laboratory that conducts high quality inorganic analyses of water, sediment, or tissue samples. Analytical work is geared toward publicly supported

environmental research, management, and monitoring activities, particularly water-related efforts requiring substantial numbers of samples.

C. Research and Scholarship Awards and Recognition

1. Faculty Fellowship Program

The Faculty Fellowship awards are granted for demonstrably outstanding accomplishments in research, scholarship, or creative activity. Selection of recipients is made upon recommendation of the Research Council to the Vice Provost for Research. The awards consist of one year release time from formal teaching and other duties (to allow a focus on graduate education, research, and scholarship) and a cash award of \$3,000.

2. Distinguished Faculty Lecture Series

Founded in 1974, the Distinguished Faculty Lecture Series, formerly the Chancellor's Lecture Series, is a means of recognizing distinguished members of the faculty of the University of Massachusetts Amherst. Through these lectures, outstanding scholars reach a varied audience from the University community and beyond, while serving a wider purpose in celebrating learning, scholarship, and creativity, intellectual values at the heart of the academic enterprise. Each participant in the Distinguished Faculty Lecture Series is awarded the Chancellor's Medal, the highest honor bestowed on individuals who have rendered exemplary and extraordinary service to the University of Massachusetts Amherst.