

UMBC Response to the USM Board Of Regents

Technological Fluency Resolution

March 1, 2001

I. Introduction

In April 2000 UMBC's IT Steering Committee, composed of faculty, staff and administrators, drafted a *Strategic Plan for Information Technology (IT)*. That draft addressed UMBC's commitment to the technological fluency of its students:

UMBC embraces use of appropriate technology as an integral part of its teaching, research, and business practices.... As a research university, UMBC faculty will be at the forefront of applying...technology innovations to their respective disciplines. UMBC will also improve administrative functions and customer service through the use of and access to information technology. As a result, UMBC graduates, from their exposure to such innovations on campus, will become leaders in understanding and implementing information technology in their work, home and journey as lifelong learners. (pp. 4-5)

UMBC applies three broad categories to ensure the technological fluency of its graduates: continued enhancement of a technologically immersive campus environment; identification of a core set of basic IT skills and concepts for all students; and further development, as needed, of discipline-specific requirements appropriate to particular major programs offered at UMBC.

II. Creating a Technologically Immersive Campus Environment

UMBC's environment is designed as one in which students are expected to use a variety of technologically advanced methods to take advantage of a wide range of campus services and learning activities. Through these interactions, students increase their skills and fluency in technologies that are becoming commonplace in the 21st century. Following are the most ubiquitous strategies — current and proposed — for creating a technologically immersive environment at UMBC.

UMBC works to advance the information technology skills of its students from initial enrollment and in all their contacts with campus services. The *myUMBC* portal allows students to register for classes, check their schedules, and view their account balances, all electronically. In addition, faculty and staff use *myUMBC* to work with students in advising and in course management. UMBC gives all new students an *email account* as their entrée to the campus communication system. The account facilitates contact with administrative staff and faculty. UMBC is in the process of implementing the *People Soft* software suite of administrative systems which, when launched, will engage students in the use of web technology when they use such services as advising, transcript review, and billing review.

Advancing the technological fluency of UMBC students in their academic work requires administrative support and incentives for faculty to integrate advanced uses of IT into their teaching and learning strategies. The *FaCT program* (Faculty empowerment through Common Tools) is a UMBC faculty development program funded by MHEC that enables specific departments to train at least half of their faculty in the integration of teaching and technology. Training is customized to the participants' needs for how to incorporate technology into their work with students, using online courseware packages such as Blackboard and WebCT.

As UMBC supports faculty to integrate technologically sophisticated methods into their teaching and course assignments, the campus' recently established *Assured Access* strategy requires that students have ready access to a computer and the Internet by Fall 2001, so that each student can complete any course assignment given. Assured Access creatively addresses the challenge of advancing the technological fluency of all students, while imposing minimal financial burden on students who may not own a computer. Nearly 80% of UMBC students already own a computer. Through Assured Access, UMBC will provide students with demonstrated financial need a low-cost computer rental and will continue to equip, support and operate round-the-clock computer labs on campus.

As part of UMBC's commitment to graduating students who become lifelong learners skilled at using the technology of the 21st century, UMBC offers various *courses in the online mode*, enabling students to take full advantage of the distance learning opportunities that will also present themselves after graduation. The Flexible Master's program in Information Systems, to be offered in conjunction with the US Open University, represents UMBC's most recent foray into this arena. It offers an *entire online academic program* to students. The greatest challenge in this area is the need for greatly increased resources to grow the number of high quality online courses offered. The *elearning* budget initiative is a step in this direction.

The Albin O. Kuhn Library's sophisticated array of electronic services make its extensive resources easily available to students, advancing their competencies in accessing information and conducting online research. The most relevant initiatives include online journals; eReserves; eBooks; journal index searching; links to holdings; and digitization of audio recordings and images.

A relatively new and dynamic campus, UMBC facilities can be *wired and networked* to take maximum advantage of teaching/learning and information technologies. New campus buildings presently in the design phase, such as the IT/Engineering and Public Policy buildings, will offer state of the art IT resources, including wireless applications, in their lecture halls, classrooms and lab facilities.

III. Technological fluency requirements for all students

Historically, UMBC has sought to avoid a one-size-fits-all approach to the technological fluency standards for its students, preferring that departments and programs decide the level and type of skills most appropriate for their majors. Under this approach, nearly 80% of the major programs in the College of Arts and Sciences include required courses that provide technological fluency to their majors, while all majors in the College of Engineering develop an advanced set of skills. However, faculty report that while many students come to UMBC with well-developed skills, there is a need to provide assistance to those who do not, many of whom are transfer or nontraditional students. Some students have little computer literacy or need remedial work and UMBC is currently examining the best ways of ensuring that these needs are met.

The Strategic Plan for IT identified the need to develop a set of core technological literacy skills for all students. In addition, the Honors University Task Force Steering

Committee Report (January 2001) concluded that there is a need for departments to identify the discipline-specific skills that graduates need for success in their fields. UMBC is considering the development of an assessment survey to be self-administered by students, through *myUMBC*, during Orientation. The survey would assess which students need the most assistance at the basic level to prepare them to master more advanced, discipline-specific IT skills. In addition, there is a beginning discussion on campus about the possibility of developing a technological literacy course — possibly offered online — to be required of all students not demonstrating the required proficiencies.

In the meantime, UMBC offers a number of courses that advance the technological competencies of many students prior to their major course of study. In foreign language study — required of all UMBC graduates — as well as in English 100T and approximately 50% of English 100 sections (composition), students work with word processing files and CD ROMs, use email to communicate with their professors and other students, use online web sites and download materials, and learn how to critically evaluate information from the web. UMBC students not majoring in the natural or physical sciences (approximately 40% of the 1400 new students per year) often select Science 100 to fulfill the science requirement. UMBC hopes to expand enrollment capacity from 200 to 600 students in this course, in which students develop skills with word processing, spreadsheets and graphs, Internet searching, and email attachments. There are no texts or handouts for the course; students access readings, participate in discussions, ask questions, and submit papers online.

IV. Technological fluency requirements for students in each major

The Report of the Honors University Task Force Steering Committee recommended that the Provost engage each department in a discussion of how the major programs are presently addressing the discipline-specific technological fluency needs of their majors. The first question is the extent to which the current course requirements prepare the graduates for technological fluency in the professional fields related to the discipline. The second question is what barriers must be removed and additional steps taken to ensure that graduates in each major have the specialized skills they need to compete and perform successfully in their careers after graduation.

As a start to these dialogues, the Office of the Provost surveyed academic departments to gather data on the following issues: the basic and conceptual skills each department believes are prerequisites to work in their majors; the degree to which students enter the major program with these skills; the discipline-specific IT skills students should ideally possess upon graduation; specific courses taught in each department to develop discipline-specific skills; and barriers to requiring discipline-specific skills and actions needed to overcome them.

Reports vary on the extent to which departments indicate that students already have the prerequisite competencies needed for discipline-specific skill development. Some departments require their majors either to complete an IT course or show basic computer competence through examination. Other departments indicate that students enter their programs with a relatively strong degree of basic IT skills or learn them quickly and

advance to the discipline-specific skills. A few departments indicate that while some students enter the major ready to learn discipline specific skills, many need basic skills such as spreadsheets, word processing and web browsing. Many departments — primarily sciences and engineering — identify, in addition to the basic skills, specific advanced computer and specialized software skills needed for proficiency in their disciplines. While some departments require students to take an IT-specific course in the major to develop these skills, many of the science and engineering departments, as well as some in the arts and social sciences, have integrated their technological fluency requirements throughout their curricula, obviating the need for specific IT courses.

The most commonly reported barriers to requiring discipline-specific IT skills of students are: training and support needed for faculty development; need for additional computer lab space and equipment for students; need for institutional support for discipline-specific specialized software programs; and advancements needed in classroom wiring and equipment for technology-enhanced teaching and learning.

Data from this survey will be further analyzed and shared with the IT Steering Committee and with faculty. Together with the Strategic Plan for IT and the recommendations of the Honors Task Force Steering Committee, the results of this survey will be used to refine assessments and campus and departmental plans for continued advancement of students' technological fluency. Faculty development programs and software, hardware, and technical support initiatives that address identified barriers will be included in campus priority setting and budget processes over the next three years to ensure continued advancement in the technological fluency of all UMBC graduates.

V. Closing statement

UMBC has set a challenging goal for the technological fluency of its students: that they graduate not merely with a set of basic IT competencies, but be appropriately skilled and prepared to keep pace with the technological changes they will encounter in their lives and work. UMBC will implement the Board of Regents' requirements that all proposals for new programs and all periodic program review reports address the issue of technological fluency. The campus will also implement its Assured Access Plan, and consider the recommendations of the Strategic Plan for IT and the Honors Task Force Steering Committee. Additional resources are needed to expand the FaCT program for faculty development, support the academic departments in their acquisition of state-of-the-art equipment and software, and develop basic assessment and skill-building programs for students who need them. Given appropriate funding, UMBC will be ready to ensure that *all* its graduates have the IT skills needed to perform successfully in their careers and in their endeavors as citizens and lifelong learners.

Appendix

The following documents from UMBC's IT and planning initiatives can be found on the web.

Strategic Plan for Information Technology
<http://www.gl.umbc.edu/it/IT-plan.pdf>

About Assured Access
<http://www.umbc.edu/access/about.htm>