

FC-08-051

TO: University of Idaho Faculty Council
FROM: Information Technology Committee
RE: student laptop requirement
DATE: February 29, 2008

The members of the Information Technology Committee request that the Faculty Council debate an academic policy requiring full time students to obtain laptop computers. In the attached document, Ron Robberecht reviews various aspects of a laptop requirement. Most important among his observations is that the availability of laptops will enhance classroom teaching and learning.

Issue: University-wide requirement for laptop computers in the classroom

Synopsis: Computers are an indispensable tool in education. Key uses of computers at the University of Idaho include: online courses, distribution of learning materials via course web site, course homework assignments and projects, computer-based testing (especially via course systems such as Blackboard), email, and library and archival research of online databases, and Internet searches. Despite the ubiquitous use and essential nature of computers at the university, computers are generally absent from the classroom. Notable exceptions include the College of Law and the College of Business and Economics.

Advantages:

Computer-based testing Currently, because computers are not required in the classroom, it is not possible to have advanced computer-based testing during class to assess student performance. The Blackboard courseware system, e.g., is one of several excellent assessment tools that can quickly be administered and evaluate student performance on mid-term and final examinations in a secure classroom environment. Instead, computer-based testing is limited to wireless devices (e.g., InterWrite PRS and Turning Technologies). These devices are being used successfully in many courses at the university, but these devices must be purchased by students and offer instructors limited options for examinations. Computers in the classroom would eliminate the need for such wireless devices and allow the instructors more sophisticated levels of testing. Multiple choice/short answer tests could be automatically graded, and grading of essay-style examinations would be significantly facilitated because word processor features (e.g., spell and grammar checking, formatting, electronic submission).

In-class computer-based exercises Courses in a variety of disciplines use computer-based modeling (e.g., projects in art, architecture, science, natural resources, engineering, and chemistry), *what-if* scenarios, and discussions based on Internet searches. All of these course enhancements could be used on a regular basis only if computers were required in the classroom.

Innovative and transformative teaching/learning approaches Laptop computers in the classroom would allow instructors to develop innovative approaches in teaching/learning that would be difficult to achieve without classroom computers. In classrooms at other universities where tablet-style computers have been used, new and transformative classroom arrangements and teaching/learning approaches have emerged. Since learning materials are available simultaneously on everyone's computer screen, students and instructor work together as a group rather than the traditional student-professor classroom arrangement where students all face forward toward the instructor and learning materials are presented only on the front screen.

Electronic note-taking and the potential for substantial reduction in paper use and waste An increasing number of courses at the university have online learning materials (e.g., class notes, slide presentations, illustrations, and readings), which students can view electronically outside of class sessions. Because these are not accessible in class unless students have computers in the classroom, students tend to print out such electronic learning materials for use in class. This is not only inefficient, but tends to use a substantial amount of paper – paper that may become waste after the class is completed¹. Computers in the classroom would allow students to access online learning materials during class sessions as well as take notes electronically. (The capability to annotate electronic materials is integrated into Windows XP and Vista.) Furthermore, electronic learning materials that are interactive and non-sequential, and include multimedia elements lose these aspects when printed. The potential for a substantial reduction in paper use and waste would be consistent with the universities initiative on sustainability.

¹For the course, Ecology (RNGE 221), all learning materials are online and available anytime and anywhere. Yet, students tend to print out the lecture notes for use in class – a use of more than 5000 pages of paper per semester course.

Disadvantages:

Cost of computers The cost of laptop computers has substantially decreased at the same time that the capabilities of such computers have increased¹. A highly capable laptop computer for most learning applications costs between \$500 - \$800. Also, the V-Mobile program currently provides excellent cost/service computer purchase opportunities for students at the university.

Multi-tasking and distractions Computers in the classroom have the potential to create new distractions. Students who engage in non-class activities on their computers are distracted from learning. Moreover, such students distract other students from learning. Thus, computers in the classroom will require instructors to establish strict guidelines for appropriate use of computers in the classroom. Instructors will have to adopt new teaching techniques to engage and challenge students in the classroom so that students maintain their attention on classroom activities.

Weight A typical laptop and charger may weigh four to six pounds. While students may resist the requirement to transport a laptop around campus, the added weight of the laptop may be offset by a reduction in need to carry other course supplies, e.g., notebooks, paper, lab and textbooks.

Infrastructure: Wireless limit Currently, wireless access points at the university are limited to about 25 students per wireless point. This limitation would be problematic for large enrollment classrooms. However, this technical limitation is relatively easy to increase and can be accomplished at relatively low cost.

Security (possible hacking) This should not be a problem as long as students and instructors use secure web sites ("SSL") such as Blackboard and secured course web sites.

Electricity: Battery life This is a potential problem for students who would use their computers in successive class sessions where opportunities for plug-in power and recharging are not available. Students would also have to be more judicious in making sure their computer batteries are sufficiently charged to last through each class session. Thus, class rooms would have to have sufficient power outlets available.

Compatibility Currently, both Windows and Apple Macintosh laptops are used by students at the university. Even though the overwhelming majority of computers use the Windows operating system, a mix of Windows and Apple operating systems in the classroom could pose compatibility problems (these problems can be resolved on late model Apple laptops that can run the Windows operating system).

¹Class surveys in Ecology (RNGE 221) for 2007 show that 100% of the students own computers; most of whom own laptops.