

Computer Use at Colby and Purchase Recommendations for First-Year and Continuing Students*

Ray Phillips
Director of Information Technology Services, Colby College
May 23, 2008

A computer is a very challenging product to purchase wisely. Whether, When, and What to buy are not easy questions to answer, although advice is readily available. If you talk to friends, family, acquaintances, and sales representatives about these issues, you are likely to get a wide diversity of opinion, most likely expressed with near religious fervor. Having recently decided what new computers the College will purchase this summer to provide as replacements for computers in labs and being used by faculty and staff, I know what a hard choice this is. Every buying decision is a compromise and cost is a significant problem.

You have many options from which to choose and, because there is no computer sales store on campus, you have the opportunity to deal directly with a manufacturer or computer store at the location of your choice. You should select a system that best meets your needs and has the level of support and price with which you are most comfortable. As will be discussed in more detail below, the major question you should be asking the sales representative of the computer manufacturer that you are considering is "How will the manufacturer provide service and support for the computer in case there is a hardware failure or a problem with the operating system?" If you cannot be assured good service and support, you should consider another manufacturer or retail outlet.

This document is intended to provide a brief overview of issues you need to be aware of concerning the computing environment at Colby, especially as it relates to the decisions that students and their families face regarding possible purchase of a computer. My major goal here is to identify for you what I see as the critical factors to be considered in answering the "Whether, When, and What to Buy?" questions.

Here are the essential points:

- **Student ownership of a computer is not required.** We do strongly recommend that students seriously consider having a computer. All students have access to computers in the student clusters 24-hours a day, 7-days a week when classes are in session and during finals, but students should be aware that it may be necessary to wait for access to a cluster machine at times during the semester when many classes have papers and other assignments due. Because both Macintosh and Windows computers are used by faculty, even students who have a computer will need to use computers in the clusters at times. However, during the past several years we have rarely had significant delays in student access to a computer in the clusters. Students who choose not to have a computer or cannot afford one have abundant access to computers in the clusters and are able to accomplish their assignments there.
- **Most students own a computer.** This past year, about 97% of students owned a computer and over 98% of entering students had a computer.
- **Computers are used extensively at Colby.** The College has long provided every faculty member with a computer. There is considerable use of computers in the curriculum in all academic disciplines, in research and other scholarly activity, in general communication through e-mail and the web, and for administrative information access such as academic records, course registration, Career Services job lists, class scheduling information, event scheduling information, etc. Computers anywhere on campus can be used for these tasks.
- **Computer labs are available.** Student computer clusters contain 45 Macintosh and 45 Windows computers in open-access labs and computer classrooms, and about 155 Macs and 125 Windows computers are in specialized facilities.
- **Residence halls are fully networked.** Every room in every residence hall has network access. Colby Gardens has only wireless network access in each room; for student computers that do not have wireless network hardware (e.g., desktop computers), the College provides a wireless network access device to connect to the Ethernet port on the computer. In all other residence halls there is both a wired high bandwidth Ethernet port for each student and wireless network coverage; students must provide what is needed to connect to these resources.
- **Wireless network access (802.11a/b/g).** Besides the full coverage of the residence halls, many student gathering and study areas, including all libraries and the Cotter Union, are covered by a wireless network that can be accessed by any member of the Colby community having a suitably equipped notebook computer (www.colby.edu/administration_cs/its/resources/network/wireless). Students **are not permitted** to use their own wireless hubs in the residence halls or elsewhere as a result of their interference with the College's network.
- **Wireless network access in the academic buildings (802.11a/b/g/n).** During the summer of 2008, the wireless network is being expanded throughout all academic buildings, including classrooms. The latest wireless protocol (802.11n) is being included, along with the other standards for maximum compatibility with student hardware.

*This document, with clickable hyperlinks, is available on the web here: www.colby.edu/info.tech/policies

- **Network Access Control (NAC) System in the residence halls.** The NAC requires that each computer connected to the network in the residence halls be registered to a person and pass the test for up-to-date antivirus software and critical updates to the system. This system is designed to reduce the vulnerability to computer viruses and other “malware.” Neither it nor other systems on the network are used to monitor individual activity, in accordance with the rights to privacy provided by the Code of Ethics for Information Technology at Colby College.
- **Windows and Macintosh are both welcome and supported.** The College moved from a Macintosh standard to a Windows/Macintosh dual standard in 1998. While Macintosh predominates on faculty desks on campus in terms of number, Windows computers are common and are supported at the same high level. Students should expect to become familiar with both systems because of the specialized software used by the faculty.
- **Microsoft Office required.** The standard Colby software package for both Macintosh and Windows computers is Microsoft Office (Word, Excel, and PowerPoint). It is expected that students owning a computer will have MS Office to permit document exchange with the faculty and to enable support from the Student Computer Services (SCS). Please note that no support for alternative word processing, spreadsheet, or presentation software will be provided and their use is discouraged for compatibility reasons.
- **Microsoft Office is provided by Colby.** Colby has a Microsoft Campus Agreement site license that provides all Colby students, faculty, and staff with a license to use MS Office (Mac and Windows versions) and a variety of other software, including all upgrades as they are released, during their years at Colby at no charge to students. All student-owned computers are covered, no matter where they were purchased. An installation CD is included elsewhere in this packet. If you are buying a new computer you need not purchase it with Office installed; use this CD to do the installation yourself. Students in the senior class are provided with a license that gives them permission to take and use indefinitely the software on their computers when they graduate.
- **Anti-virus software is essential; Sophos is provided by Colby.** Every computer on campus, especially those running Windows, must have anti-virus software installed and kept up-to-date. Colby has licensed the Sophos software and update service for all students. This can be installed from Colby’s servers over the network and is set to automatically obtain updates to block new viruses that are released (see www.colby.edu/administration_cs/its/support/sophos.cfm for more information and to download a licensed copy of the software). This will require using your Colby account name and password. Instructions for setting your password are elsewhere in this packet.
- **Students owning Windows computers must regularly install Microsoft’s critical updates.** A Windows computer that is not regularly updated by the owner is vulnerable to attack by viruses, worms and bots. Colby’s email server blocks viruses from being distributed in this way but attack can occur through web browsing, infected computers on the network and other sources. Student Windows computers should be set to automatically install critical updates from Microsoft. More information on protecting your computer can be found here: www.colby.edu/administration_cs/its/support/protect.cfm
- **Other software.** A variety of software for both Windows and Macintosh computers is available through Colby’s network servers, which manage license restrictions on concurrent use. Students may find it appropriate to purchase additional software and, in a few classes, it will be part of what is required or recommended as a “textbook.” General student clusters are an option for using this software.
- **Choosing between Macintosh and Windows** when buying a computer for use by a student is most likely either a non-issue because of strong personal preferences or a dilemma because of conflicting viewpoints being heard. Here are my criteria for making a choice between Windows and Macintosh computers for student-ownership:
 - Personal experience and preference of the student. This is the most important factor in determining how extensively and effectively a computer will be used at Colby.
 - Experience with computers after arriving at Colby, assuming the purchase of a computer is postponed until later.
 - The student’s anticipated major, although specialized applications in each major are most likely to be accessed in labs and not on a student’s own computer. There are no academic disciplines in which there is an absolute requirement for either Windows or Macintosh computers.
 - The predominance of Windows in the corporate environment.
 - The wealth of relevant academic software for each platform.
 - Greater difficulty for a typical computer owner to solve a Windows problem.
 - Windows systems are much more vulnerable to computer virus and other attack, making it essential that critical updates and anti-virus software be installed. However, it is also important to maintain anti-virus software on Macs.
 - It is almost a certainty that each student will use both Windows and Mac computers at Colby.
 - An opinion that endorses the absolute superiority of one over the other is most likely either based on a narrow set of applications or on lack of familiarity with the advantages of the other.

- For most of what students will be doing with computers, it makes little difference whether they are using a Windows computer or a Mac.
- Last year's entering class brought about 60% Windows and 40% Macs.
- **Desktop vs. Notebook (laptop) Computer.** The choice between a desktop and notebook (laptop) computer is a critical one, again to be based mostly on personal preference and how it is expected to be used. Among students there is a strong trend toward notebook computers, especially with the wireless network expansion into the academic buildings under way. Last year's entering class brought 90% notebook and 10% desktop computers. While many faculty members are using notebook computers for in-classroom presentations, students are not encouraged to use notebook computers for in-class note taking because of the distraction caused by the keyboard noise and diversion of attention. However, students find it convenient to take the notebook computer to the library for use with the wireless network, laboratories, other study areas, and vacant classrooms to work. The libraries have 25 notebook computers for loan to those working there. The drawbacks in having a notebook computer are (1) limitations in size and resolution of the display; (2) the keyboard may be somewhat harder to use, making it imperative that exercise and other workplace ergonomic considerations be made to avoid repetitive stress disorder (the College provides external keyboards and mice for faculty and staff to use with notebook computers at their desks), and (3) notebook systems are usually more expensive and have lower performance than desktop systems
- **For Windows computers,** Colby does not have a recommended manufacturer for individual purchases, although the College purchases Dell Windows computers. **Which Windows manufacturer should you select?** The answer should be based on your confidence that the manufacturer can provide the necessary operating system and hardware support in the case of malfunction/failure of the system. The College's selection of Dell is not based on this criterion but we have a different support structure than would be used by a student computer owner. Dell may or may not be best for an individual purchaser. We have been pleased with the quality of Dell enterprise models (Optiplex and Latitude) but have little experience with the consumer models (Dimension and Inspiron). There are lots of alternatives to Dell and you should consider features and price, but focus on after-sale service that the student-owner will have to use if there is a problem with the operating system or hardware. We also recommend that you ask about the manufacturer's support for environmentally safe old computer disposal. **What about a home built computer?** "Aunt Jane or our friend Joe down the street assemble really good computers at very low prices. Is it OK for me to bring one of these computers?" Yes, you may use it but make sure you have her/his telephone number in case anything goes wrong because we cannot help in any way except with standard configuration support and software installation on a properly functioning computer.
- **For Macintosh computers,** Apple is the only manufacturer. Colby does not support Macintosh emulation software running on a Windows computer. Although there is good Windows emulation software and multiple OS capability for Macs, support is also not available.
- **Computer "bargains."** We discourage purchase of "bargain" computers that are available in some retail outlets and by mail order. To be useful, student-owned computers must be able to function in a highly networked environment.
- **Macintosh OS X and Microsoft Windows XP and Vista are supported.** The College is waiting until at least 2009 to deploy Microsoft Windows Vista on faculty and cluster Windows computers but student support for Vista is available.
- **Microsoft Windows XP Home or XP Professional?** Either one is fine for use by students at Colby.
- **Windows Server computers are prohibited** at Colby unless directly managed by ITS because of the network disruption they are likely to cause when not properly configured. Servers discovered to be running in the residence halls will be denied network access.
- **Linux.** A few highly knowledgeable and self-sufficient students are using Linux. However, Linux is currently unsupported except in the labs and offices of the Computer Science Department. Any student running Linux is expected to be completely self-sufficient.
- **Software, movie and music piracy is illegal and prohibited.** The College takes a strong stand against the illegal downloading and redistribution ("piracy") of MP3 music files, movies, games and software. Students who traffic in illegal copies, including audio files and movies, are subject to college disciplinary action and possibly criminal and civil legal action as well. Students should be familiar with the College's Digital Millennium Copyright Act procedures and other related policies.
- **College IT policies.** The relevant information technology policy documents are available on the web on the ITS home page and in the student handbook and it is very important for students to read and understand what their rights and responsibilities are under these policies: www.colby.edu/administration_cs/its/policies
- **Should you buy a top-of-the-line computer now so it will still be an advanced model when the student is a senior?** I recommend that you not purchase an advanced computer unless it is clear that the capabilities are needed immediately. Rather than spending up to twice as much on a computer now and thinking it will meet advanced needs for four years, I urge saving money and consider a low-end replacement in 2 or 3 years when the student is a junior or

senior. In fact, the low-end computers next year will probably be more advanced than this year's moderately advanced computer.

- **How long will a computer purchased now be useful?** Most students own a single computer for their college careers and it meets their needs well. In spite of the rapid change in technology and the notion that a computer becomes “obsolete” by the time it is delivered, the reality is that a computer with its assortment of software purchased now will function just as well in three years when the student begins the senior year. What that computer may not be able to do well is run newer versions of the software that are released during the intervening years. Students should be cautious in making upgrades in the operating system and software such as MS Office because performance may not be adequate.

Computer Configuration Recommendations

What are the important features to consider in a computer?

- The most important requirement is that the system be network certified for 10/100/1000-base-T wired Ethernet. This is the industry standard.
- Modern notebook computers will typically have a 56K modem; this may be useful when traveling away from campus but has no practical use on campus. Students living off-campus can use modem connections to the campus.
- Notebook computers should be equipped with a wireless network card that uses any one of the 802.11a/b/g protocols and also has 802.11n. For the latest information we have on compatibility issues, see our web page at www.colby.edu/administration_cs/its/resources/network/wireless
- Flat panel (LCD) displays are highly recommended over CRT monitors for use with desktop computers. Space is limited on desks in the residence halls and flat panel monitors consume only about one-third the electricity of a CRT. The College stopped purchasing CRT displays in 2004.
- The system should have at least 1 GB of RAM (all new College-allocated computers have 2 GB) and at least 100 GB (60 GB if a notebook computer) of hard drive storage. New computers are likely to have larger capacity hard drives.
- Students will likely find it convenient to own a USB storage device (flash drive/memory stick). 1 GB devices are available for about \$10.
- A writable DVD/CD (DVD-R/CD-R) drive is essential for making backups of important documents and for archiving files.
- The video port on a notebook computer is essential for connecting to an external monitor or a projector in a classroom. All models except ultra-mobile notebooks and handhelds are likely to include this port. It is always wise to test a notebook computer ahead of time with the projector that will be used when making an important presentation in class or elsewhere to allow time to work around compatibility and configuration issues.
- Anti-virus software is absolutely essential. Colby has licensed Sophos for every student but a trial license of either Norton, McAfee, or Sophos is essential for use until the software can be downloaded from Colby's servers onto the students' computers (see www.colby.edu/administration_cs/its/support/sophos.cfm)
- Extended warranty/support for the hardware and operating system to cover a full three-years of telephone support, parts, and on-site labor warranty is highly recommended. For notebook computers, consider comprehensive coverage that would cover accidental damage. The manufacturer typically services notebook computers by having you ship it overnight to a repair facility.
- **To minimize your cost, do not include Microsoft Office in the initial purchase.** MS Office Professional can be installed from the CD we have included in this mailing. If you need the Macintosh OS X version of Office, follow the instructions included with the CD and we will send you immediately that CD (and you should return the unopened Windows CD package to us when you arrive on campus). Our Microsoft Campus Agreement licenses every student for this and other software, and we have licensed Sophos anti-virus software for each Student as well.
- **What about a printer?** The College does not provide computers or printers in the residence halls except Colby Gardens, so it is very convenient to have a personal printer. Laser printers in the general clusters are available 24 hours a day and there is no charge for printing on them, only a strong Colby Green Computing recommendation to conserve and use duplex (2-sided) printing. Color laser printing is available at a charge (currently \$.50/side), with a \$20 color printing subsidy provided to each student for the 2008-9 academic year. [The charge and subsidy may change in future years.] One possibility is to delay purchasing a personal printer until it is determined what is needed based on the student's own experiences.
- **Is there network file storage? What are the alternatives?** Each student has access to convenient central storage and enhanced capacity is available for students with large file requirements on projects that involve such applications as GIS (Geographical Information Systems) and video editing. In addition, it is fairly simple for students to create secure share folders on their computers that can be accessed from anywhere on campus under their own password control.

- **You will need to buy an Ethernet cable.** New computers hardly ever come with the cable needed to connect the computer to the wired Ethernet jack in the faceplate on the wall. The big question is always “How long a cable do I need?” The most accurate answer is “You won’t know until you see how far it is from your desk to the faceplate.” A more useful answer is “If you buy the shortest cable possible this year because that is all you need, it is almost guaranteed that it will be too short next year.” It is our experience that students generally find that a 15 to 20 ft. cable is fine. This can be purchased after arrival at the Bookstore or at area computer supply stores.
- **Why not just use the wireless network?** The wired network has a much higher bandwidth, making web page and other resource access much faster than wireless. If a wired port is available and convenient to use, we recommend using it.
- **What about cordless phones and microwave ovens?** Cordless phones and microwave ovens are issues only because they can interfere with the wireless network. 5.8 GHz cordless phones are less likely to cause interference; 2.4 GHz cordless phones and microwave ovens may need to be relocated in the room if students find they are causing loss of wireless network connection. Cell phones cause no disruption with the wireless network.

Where Do Students Get Help With Computer Problems?

Students have several resources available to them to solve computer problems and to get repairs made. Most prominent are the following:

1. *The computer manufacturer (Apple, Dell, etc.)* - Operating system and hardware repair.
2. *Student Computer Services in ITS (phone 4224)* - Network connection, application installation and operation, and general usage assistance. (www.colby.edu/administration_cs/its/support/scs.cfm)
3. *Local computer stores* - Expedited service, including out-of-warranty work, usually for a parts and labor fee, can be obtained from a local computer store (www.colby.edu/administration_cs/its/support/local-repair-vendors.cfm).

Here are some details about these three areas of service:

The computer manufacturer (Apple, Dell, etc.)

When you buy a computer, you are also buying access to a support structure provided by the manufacturer. Many problems encountered by students can be solved most expeditiously through this kind of telephone support service, typically available 24 hours a day, 7 days a week. If a hardware failure is identified by the manufacturer during this support process, students will be instructed by the manufacturer on how repairs will be handled by the manufacturer. Colby does not have any involvement in this communication.

ITS Student Computer Services (4224 on campus, 859-4224 off campus)

SCS provides on-site support to students having problems with their computers. It is staffed by students employed by ITS and uses a tracking system that is also accessed by the ITS professional staff to address network and other general problems that may arise. SCS focuses on the Colby-specific support issues that the manufacturer generally cannot address. These are the priorities for SCS support:

1. Network Connectivity — verification of correct operation of the student's network port at the wall jack, integrity of the student's Ethernet cable that connects the computer to the wall jack, and configuration of the network software on the student's computer. In cases where the network port is demonstrated to be functioning properly, the student will be provided with this assurance to facilitate the student being able to obtain corrective action from the manufacturer.
2. Application Installation and operation — Microsoft Office installation and support. All students are covered by the Microsoft Campus Agreement so installation and upgrades can be provided without being concerned with licensing issues. The same is true for Sophos anti-virus software.
3. SCS employees are prohibited from doing any hardware repair. Any work that entails "opening the computer" or doing more than connecting cables or inserting/removing notebook computer PCMCIA cards must be done by a manufacturer-dispatched repair technician or a local service provider.

Local Computer Stores

There may be times when neither the manufacturer nor SCS can provide what a student or parent considers to be timely service for a problem. For these situations there is always the option of using the services of one of several computer stores in the Waterville-Augusta area (www.colby.edu/administration_cs/its/support/local-repair-vendors.cfm). This list is for information purposes only and does not constitute an endorsement of any of these stores. Students should expect, though, that there will be a labor charge for those services, even if the computer is covered by the manufacturer's warranty.

Students Are Important Participants in Colby's Green Computing Initiative

Students, faculty, and staff at Colby are working in many ways to reduce the adverse impact of our campus community on the environment. The Environmental Advisory Group, on which students have provided important leadership, has consolidated recommendations in many areas of campus life, including information technology, and you will be hearing lots more from them. As you make decisions regarding computer purchases it is worth keeping these computing-related issues in mind:

1. Turn off your computer! A modest amount of turning on and off will not harm the equipment. Leaving it on all night and all weekend wastes energy.
2. Group your computer activities and try to do them during one or two parts of the day, leaving the computer off at other times. Break the habit of switching the machine on every morning and leaving on all day.
3. Do not use a Screen Saver! Set the computer to have the screen go blank after being idle a few minutes and set the monitor to go to very low power standby when it is blank. It takes only a moment to restore the display.
4. Buy only "Energy Star" computers and accessories. What's Energy Star? Visit - www.energystar.gov/products
5. Set your computer to 'sleep' or 'stand by' when not in use for a certain period of time. Consult your control panel for setting options.
6. Don't turn your printer on until you are ready to print. Printers consume energy even when idle.
7. Print as much as you really need to edit your documents in preparation for the final result, but try to edit on the screen as much as possible.
8. Don't print off those long web pages or literature search results that you could more easily save to disc.
9. Use duplex printing (2-sided) whenever possible.
10. Buy good quality remanufactured toner cartridges instead of new ones, but avoid simple recharged cartridges that can actually clog up your printer.

For more information, see our web page: www.colby.edu/administration_cs/its/support/green_computing.cfm

What To Expect This Fall

We in Colby's Information Technology Services department look forward to the arrival of the Colby Class of '12 on August 26, 2008. We will be ready to assist with computer network configuration and final software installation on that day. Look for us wearing our Colby Computer Connection 2008 shirts. On September 2, 2008, the day before the start of classes, we will again have response teams to help new and returning students with computer set up problems. Our objective is to have all student-owned computers in the residence halls fully operational before classes start. Students must take advantage of this service on these two days or they can expect delays, primarily because of the scheduling problems a student will have once classes begin. Students are expected to unpack and set-up their own computers and printers. With the information sheets made available at residence hall check-in, each student should be able to configure and begin using her or his computer without assistance. The MS Office Professional CD is included in this mailing and should be used to install the software when your new computer is received. Be sure to bring this CD with you in case you need to reinstall the software later. The Colby Computer Connection 2008 staff will not unpack computers but can help with configuration problems and troubleshooting. Advanced technical support personnel from an outside vendor will be available to the team members to solve difficult non-hardware problems. The response teams in the residence halls provide a free, high-level service intended to give students every opportunity to start the year off right in their use of information technology.

Information Technology Services provides workshops and posts instructional web pages (www.colby.edu/administration_cs/its/instruction/tech-training.cfm); students are encouraged to explore these resources for topics that will meet their academic needs. Please visit this site for more details and any updated information: www.colby.edu/administration_cs/its/info/fall2008.cfm

If you have questions about Colby's information technology environment or need general advice on making a purchasing decision prior to Aug. 26, 2008, please send email to computer-advice@colby.edu or call Paula Lemar at 207-859-4206. You are also welcome to contact me directly during the summer or during the academic year (e-mail: Ray.Phillips@colby.edu; phone 207-859-4209). Welcome to the Colby Community!

Ray Phillips
www.colby.edu/profile/rbphilli