

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

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May 26, 2009

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 factor.

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 that I think 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 during the next four years?" 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 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 and specialized labs 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 to accomplish their assignments.
- **Most students own a computer.** Nearly every student at Colby has a computer, typically a notebook/laptop model, but students without one have abundant access, just not as convenient.
- **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 165 Macs and 125 Windows computers are in specialized facilities.
- **Residence halls are fully networked with wired ports and wireless (802.11a/b/g).** Every room in every residence hall has full network access. There is both a wired high bandwidth (100 Mbps) Ethernet port for each student and full wireless network coverage; students must provide what is needed to connect to these resources. Students **are not permitted** to use their own wireless hubs in the residence halls or elsewhere due to the interference of these devices with the College's wireless network.

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

- **Wireless network access in the academic buildings (802.11a/b/g/n).** An enhanced wireless network has been installed in the academic buildings, including coverage in the libraries and all classrooms, making available the latest protocol (802.11n) along with the other standards for maximum compatibility with student hardware.
- **An optional secure wireless network connection is available to all students, faculty and staff** (www.colby.edu/administration_cs/its/support/colbysecurewireless.cfm).
- **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. Macintosh predominates on faculty desks on campus in terms of number but 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. During the 2008-2009 academic year, 52% of all students owned Macintosh and among first year students 62% owned Macs. We have seen a dramatic swing in student computer ownership toward Macs during the past three years.
- **Microsoft Office is required.** The standard Colby software package for both Macintosh and Windows computers is Microsoft Office (Word, Excel, PowerPoint and either Outlook (Windows) or Entourage (Macintosh) for email). 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.
- **-> THIS IS VERY IMPORTANT! Microsoft Office is provided by Colby to every student. When buying a computer, you do NOT need to purchase Microsoft Office with it.** Colby has a Microsoft Campus Agreement 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. Students may install MS Office from the network onto their computers my.colby.edu/ics/Class_of_2013/Computing_at_Colby.jnz using their Colby password; information on setting the password accompanies the printed version of this document sent in early June.
- **Will I have to delete Office when I graduate?** No. Students in the senior class are provided with an opportunity to print a software license that gives them permission to take and use indefinitely after graduation the Microsoft software on their computers.
- **Anti-virus software is required.** Every computer on campus, especially those running Windows, must have anti-virus software installed and kept up-to-date. There are several commercially available anti-virus packages but it is essential to maintain the license to get updates. Free anti-virus applications are also available. Information about anti-virus options is available here: www.colby.edu/administration_cs/its/support/protect.cfm
- **Students owning Windows computers must regularly install Microsoft’s critical updates.** A Windows computer that is not regularly updated is vulnerable to attack. Colby’s email server blocks viruses from being distributed through that medium but attack can occur through web browsing, from infected computers on the network and other sources. Student Windows computers must 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 usually an option for using this software.

- **Choosing between Macintosh and Windows.** Whatever the student is most comfortable using will be the best choice. Every expert is biased on this issue and both systems have strengths and weaknesses.
- **Desktop vs. Notebook (laptop) Computer.** Most students own a notebook computer, although desktop computers are fine. While many faculty members are using notebook computers for in-classroom presentations, students are not generally encouraged to use notebook computers for in-class note taking because of the distraction caused by the keyboard noise and diversion of attention from discussion. However, most students find it convenient to take the notebook computer to the lounges, library study spaces, laboratories, group study areas, and vacant classrooms to use with the wireless network. The libraries have 25 notebook computers for loan to students working there.
- **What brand of computer should you buy?** Colby does not have a recommended manufacturer for individual purchases, although the College purchases Dell Windows computers. Your choice 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; 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?** "We know someone who assembles 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 of Macs. 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 for this is also not available.
- **Macintosh OS X and Microsoft Windows XP and Vista are supported.** The College is waiting until at least 2010 to deploy Microsoft Windows Vista on faculty and cluster Windows computers but student support for Vista is available. It is likely that we will wind up skipping Vista and implementing Windows 7 on College-owned Windows computers.
- **Microsoft Windows XP/Vista Home or Professional Versions?** Either is fine.
- **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. Linux is unsupported except in the labs and offices of the Computer Science Department. Any student running Linux is expected to be completely self-sufficient.
- **What about a netbook computer?** These smaller notebooks are either extremely low-end Windows or Linux computers. Netbooks are an option only for the self-sufficient who know what is involved.
- **Music, movie, game and other software 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 infringe copyright law using, for example, Peer-to-Peer file sharing applications are subject to legal action by the copyright owner, as well as college disciplinary action.
- **College IT policies.** Information technology policy documents are available on the web on the ITS home page and in the student handbook. It is very important for students to understand 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 two or three times 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

Look for these capabilities. Just about any new notebook computer will have these features, at least as an option.

- **Wireless Network at least 802.11bn** - 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. 11n is the new standard and has much higher bandwidth but one of the other protocols is required for connection in the residence halls. 11b is the most often available wireless network protocol so having at least 11b and 11n is advised.
- **Ethernet 10/100** - We recommend that computers be able to connect to an Ethernet wired port and that it be at least 10/100-base-T Ethernet compatible. Most students use only the wireless network on campus.
- **Modem (not required, mostly obsolete)** - Notebook computers typically have a 56Kb modem; this may be useful when traveling or living off campus but has no practical use on campus. Its ability to transfer data is too limited for most applications.
- **2 GB RAM and at least 100 GB disc drive.** The system should have at least 2 GB of RAM and at least 100 GB (60 GB if a notebook computer) of hard drive storage. New computers are all likely to have much larger capacity hard drives than this.
- **Read and Write CD/DVD drive.** A writable DVD/CD (DVD-R/CD-R) drive is essential for making backups of important documents and for archiving files. We strongly recommend that students actually make backups of their important documents or at least copy them to their network storage, which is automatically backed up. Losing a critical draft document after spending days of effort is a sad experience. Back it up!!
- **Auxiliary Video Port** - The video port on a notebook computer is essential for connecting to an external monitor or a projector and many students use their own computers for classroom presentations. 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 and must be either licensed or a free application installed. For options, see www.colby.edu/administration_cs/its/support/protect.cfm
- **Extended warranty/support** for the hardware and operating system covering a full three- or even four-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. Although theft of student computers is rare, it does happen and I recommend that families review their insurance coverage.
- **Do not include Microsoft Office in the initial purchase.** MS Office Professional can be installed from Colby's network server. If you do not have broadband (e.g., access only to a dial-up modem connection to the Internet) we can send you an installation disc. Information for requesting a disc is on the web page.
- **Printer is optional** - The College does not provide computers or printers in the residence halls, 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 currently 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 \$.20/side), with a \$10 color printing subsidy provided to each student for the 2009-10 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, although printers are often heavily discounted when buying a computer.

- **External keyboard and mouse** – Consider purchasing these for use with a notebook computer in an ergonomically improved workspace at the residence hall room desk to avoid Repetitive Stress Disorder.
- Flat panel (LCD) displays are highly recommended over CRT monitors for use with desktop computers or as an external display with a notebook computer. 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 and we recommend that you not bring one to campus if possible.
- Students will likely find it convenient to own a USB storage device (flash drive/memory stick). 1 GB devices are available for about \$10.
- 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.
- Most students just use the wireless network but a cable is needed to connect to the higher bandwidth wired ports. This can be purchased at the Bookstore or at area computer supply stores.
- **Price?** – The cost of a computer is also dependent on the speed of the processor, size of the display, enhancements in video and audio processing hardware, etc. As a rule of thumb, I suggest that a reasonable desktop computer will cost \$800 to \$1,200 and a reasonable notebook computer will be \$1,000 to \$1,500, including at least 3 years support coverage. Of course, much more could be spent.

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 computer network (wireless and wired) configuration.
2. Application Installation and operation — Microsoft Office installation and support. Assistance with free anti-virus applications.
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 timely service for a problem. For these situations there is always the option of using the services of a computer store 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. Break the habit of switching the machine on every morning and leaving on all day.
2. Do not use a Screen Saver! Set the computer to have the screen go blank after being idle a few minutes. It takes only a moment to restore the display.
3. Set your computer to 'sleep' or 'stand by' when not in use for 15 minutes.
4. Don't turn your printer on until you are ready to print. Printers consume energy even when idle.
5. 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.
6. Use duplex printing (2-sided) whenever possible. Don't print off those long web pages or literature search results that you could more easily save to disc.
7. Buy only "Energy Star" computers and accessories. What's Energy Star? Visit www.energystar.gov/products
8. 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 '13 on September 1, 2009. 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 2009 shirts. On September 8, 2009, 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 are expected to unpack and set-up their own computers and printers but we will be available to resolve any configuration problems. Microsoft Office can be installed over the network during the summer and after arrival on campus from the following web page: my.colby.edu/ics/Class_of_2013/Computing_at_Colby.jnz. For more details and any updated information in preparation for your arrival, please visit this site: www.colby.edu/administration_cs/its/info/fall2009.cfm

If you have questions about Colby's information technology environment or need general advice on making a purchasing decision prior to Sept. 1, 2009, 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 any time during the academic year (e-mail: **Ray.Phillips@colby.edu**; phone 207-859-4209).

Welcome to the Colby Community!