

# **MBA Student PC/laptop Specifications**

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The College of Management's MBA program requires all students admitted on or after fall 2005 to own or have access to a laptop computer. This document provides minimum specifications for laptops. It also provides in depth information on five suggested models to consider. We recommend that you purchase your computer directly from the manufacturer. We also recommend that you wait until shortly before school starts to make a purchase. Computer prices fall continuously and in early August there is a lot of competition in the back-to-school market. There is a sales-tax holiday in North Carolina during the first weekend of August, which allows you to get maximum savings.

MINIMUM SPECIFICATIONS IF YOU ARE BUYING A NEW MACHINE:

Brand names to consider	IBM Think-Pads, Hewlett-Packard, Dell.
CPU	Either Pentium 4 or M. Highly recommend Centrino (built-in wireless connectivity)
System RAM	512 MB minimum
USB	Make sure you have at least two USB ports. USB drives are the best, combining reliability and large volumes at reasonable prices. USB Flash drives use memory or RAM to save data, and there is a new USB “min-Hard Drive” available that give huge volume storage very inexpensively (4 GB for \$150.00). All USB drives are easy to carry and can plug and play on any computer made after 1996 (with USB 2.0 installed).
Optical/other drive(s)	Get a drive that can read CDs and DVDs and that can burn CDs. A floppy still can come in handy.
Hard drive	40 GB for work; more if you plan to store lots of music, photos, and video.
Monitor	This is a personal decision. You may want a small, light machine and be willing to sacrifice on size (e.g., 12” to 14”). Or you may want a bigger screen (e.g., 15” to 17”) and be willing to deal with the extra size and weight. Make sure you see the screen before purchasing to make sure you are satisfied with sharpness and clarity.
Video	64 MB Video RAM for professional use
Operating System	Microsoft Windows XP Professional, Service Pack 2. <b>Please Note:</b> The MBA program does not recommend alternative Operating Systems (i.e. Apple OS X or Linux) since some classes may require simulation applications and Excel add-ons which will only work with Windows. While lab machines are available for your use, having a laptop which runs Windows XP will allow you to avoid having to do your work while in the MBA lounge.
Ethernet adapter	Get one built in, cards can get lost and broken
Modem	Make sure you have one; most systems today are designed with a modem built onto the motherboard.
Wireless	802.11b/g minimum, NCSU campus supports a/b/g; if you plan to synchronize with a cell phone, PDA or other device, get Bluetooth as well. If you have a Centrino laptop, wireless capability will be built-in.
Warranty service	3-year on-site parts and labor; DO NOT COMPROMISE ON THIS
Software	Microsoft Office Suite; students planning to concentrate in Information Technology Management should get the Professional version that contains Access. NCSU-COM is a Microsoft “shop”; any other software should be compatible with MS.

MINIMUM SPECIFICATIONS IF YOU ARE THINKING ABOUT USING A LAPTOP YOU ALREADY OWN (OR THAT YOUR EMPLOYER PROVIDES):

CPU	Intel-compatible 800 MHz
System RAM	256 MB
Optical drive	CD-ROM
Hard drive	20 GB
Video	1024 x 768 resolution available
Operating System	Windows 2000 or XP
Ethernet adapter	Yes, either built-in or plug-in
USB	At least one port
Modem	56k
Wireless	Have a card that supports the 802.11b/g standard

## RECOMMENDED LAPTOPS

This document will focus on three laptop makers: IBM, HP and Dell. The models chosen are to be interpreted as a “cross-section” of what is available to consumers from those manufacturers. Some manufacturers have the benefit of being “off the shelf” manufacturers and are able to build users their systems to the exact specifications of the user, usually online via a website or through a company representative. Dell is currently the leader in the “off the shelf” market; however, Dell does not make a Tablet style laptop, so we have chosen to include a manufacturer of Tablet laptops to ensure there was a representative of Tablets to review.

### Dell

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#### Model Selection #1

##### *Dell Latitude D610*

“The Dell Latitude D610 strikes a good balance by offering the latest technology within a very luggable 5.4-pound frame.”<sup>1</sup> Dell has improved on USB port availability in an era where users are relying more and more on USB volumes and media, so they have built “the D610 with four USB ports (up from two in the previous model) and a host of other features. Screen shows very good contrast. Excellent wireless performance. OpenManage suite lacks integration (you have to launch each component separately).”<sup>2</sup>

This model is the next generation of the D600 series Latitudes. Dell has very wisely chosen to have a standard of sorts whereby one model (the “D-Series Family”) has compatible hardware, accessories and software across the line of the family. This newest addition is included in that compatibility and extends that convenience to its users. This model also features a long life battery (4 hours) and is light weight (5.4 lbs).

Cost: Reviewed model: approx. \$1,200.00 (which is a base price, upgrades will cost you, so budget at least \$1,700.00)

**Type:** General Purpose  
**Operating System:** Microsoft Windows XP Professional  
**Processor Family:** Pentium M  
**Processor Speed:** 2 GHz  
**RAM:** 512 MB  
**Hard Drive Capacity:** 80 GB  
**Hard Drive Speed:** 5400 rpm  
**Graphics:** ATI Mobility Radeon X300  
**Graphics Memory:** 64  
**Primary Optical Drive:** DVD-ROM/CD-RW  
**Wireless:** 802.11g  
**Screen Size:** 14.1 inches  
**System Weight:** 5.4 lbs

#### Model Selection #2

##### *Dell Latitude X1*

“The ultraportable Dell Latitude X1 is a great-looking, feature-rich business notebook that won't break your bag or your bank.” That said, the reality is that this is one of Dell's newest and, by far, smallest laptops yet. It's loaded with features that any COM grad or undergrad would need, and more. Powerful processors (the newest Centrino is also available on this model through direct purchase at Dell.com, though not available at

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<sup>1</sup> <http://www.pcmag.com/article2/0,1759,1757514,00.asp>

<sup>2</sup> <http://www.pcmag.com/article2/0,1759,1757514,00.asp>

the time of review here) allow it to compete with other larger systems, both laptop and desktop! As an example, one can get the X1 with “built-in Centrino 802.11g wireless and Bluetooth. ...[the reviewed] unit's hard drive is a bit small at 30GB, but an upgrade to 60GB is available”<sup>3</sup> to build at will on the Dell website. “Sleek, new design. Super light. Affordable business solution. Not a full-size keyboard [which can be an ergonomic challenge and sometimes frustrating]. External optical drive can add to the weight.”<sup>4</sup>

Cost: Reviewed model approx \$1700.00, but plan to pay at least \$2,000.00 if you want more resources

**Type:** Ultraportable  
**Operating System:** Microsoft Windows XP Professional  
**Processor Family:** Pentium M  
**Processor Speed:** 1.2 GHz  
**RAM:** 512 MB  
**Hard Drive Capacity:** 30 GB  
**Hard Drive Speed:** 4200 rpm  
**Graphics:** Intel Graphics Media Accelerator 900 GM  
**Graphics Memory:** 128  
**Primary Optical Drive:** External  
**Wireless:** 802.11g  
**Screen Size:** 12 inches  
**Screen Size Type:** widescreen  
**System Weight:** 2.5 lbs

## IBM

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Model Selection #1

*Thinkpad T43*

“The added horsepower garnered from the next-generation Centrino component and the robust security suite make the IBM ThinkPad T43 the perfect business tool for any professional.”<sup>5</sup> The power of the Centrino is not to be taken lightly. It is fairly new in the laptop market, and for business applications, some reviewers feel that the Centrino is “over-kill;” however, as with most industries, business is becoming very techno-centric and an under-resourced tool is useless! As our society becomes more and more security-minded, manufacturers are designing and building that security into their systems....IBM has done just that: “Armed with updated components and a fingerprint reader, the IBM ThinkPad T43 (\$2,199 as tested) wins the latest Editors' Choice for business notebooks.”<sup>6</sup>

“Next-generation Centrino. Terrific typing experience. Fingerprint reader. Top-of-the-line management utilities. Trusted Platform Module.”<sup>7</sup> There are few negatives to this particular model as reviewed, “only two USB ports and no memory card slots.”<sup>8</sup> The base specs as reviewed are somewhat low, as seen in the 512 MB RAM, but upgrades are always possible.

Cost: \$1,800 and up

**Type:** Business, General Purpose  
**Operating System:** Microsoft Windows XP Professional  
**Processor Family:** Pentium M  
**Processor Speed:** 1.86 GHz  
**RAM:** 512 MB

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<sup>3</sup> <http://www.pcmag.com/article2/0,1759,1780382,00.asp>

<sup>4</sup> <http://www.pcmag.com/article2/0,1759,1780382,00.asp>

<sup>5</sup> <http://www.pcmag.com/article2/0,1759,1787983,00.asp>

<sup>6</sup> <http://www.pcmag.com/article2/0,1759,1787983,00.asp>

<sup>7</sup> <http://www.pcmag.com/article2/0,1759,1787983,00.asp>

<sup>8</sup> <http://www.pcmag.com/article2/0,1759,1787983,00.asp>

**Hard Drive Capacity:** 60 GB  
**Hard Drive Speed:** 7200 rpm  
**Graphics:** ATI Mobility Radeon X300  
**Graphics Memory:** 64  
**Primary Optical Drive:** DVD+/-RW (Plus Minus)  
**Wireless:** 802.11a/g  
**Screen Size:** 14.1 inches  
**System Weight:** 5.5 lbs

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## Model Selection #2

### Thinkpad X40

*\*\*Author's Note: It was difficult to find any reviewer that had any seriously negative comments on the X40...however, the ratings from users were somewhat average, with ratings (on a scale of 1-10) averaging around 7. It seems that this system is the Ford Taurus of laptops: reliable and fully functional, but unremarkable.*

“The IBM ThinkPad X40 has the feature set, battery life, and light weight”<sup>9</sup> that most folks look for when they need to travel or carry a laptop with them during the day. In spite of the fact that the X40 weighs in at 3.2 pounds, the battery tested out at an “impressive 6 hours 16 minutes on our BatteryMark test.”<sup>10</sup> In addition, by switching the laptop’s wireless service to 802.11g, the X40 has improved its wireless throughput.”<sup>11</sup>

“The IBM keyboard is the best we've seen, bar none. The X40 is a class act that other ultraportables are finding tough to follow.”<sup>12</sup> Other reviewers comment that the X40 is “Light; with a modular design; excellent performance; long battery life.”<sup>13</sup> There were a few items that reviewers felt should be changed, which included, “pricey; no FireWire; no integrated optical drive; no touchpad.”<sup>14</sup>

Processor<sup>[1]</sup>:  
Intel® Pentium® M Processor 738 Low Voltage **1.40GHz**  
Operating System<sup>[12]</sup>:  
**Microsoft Windows XP Professional**  
Memory<sup>[8]</sup>:  
**256 MB**  
Hard Drive<sup>[4]</sup>:  
**40 GB**  
Wireless<sup>[10]</sup>:  
**Intel PRO/Wireless 2200BG**  
Weights (lbs)<sup>[2]</sup>:  
**3.2-3.2**  
Security Subsystem:  
**IBM Embedded Security Subsystem 2.0**  
Graphics:  
Intel Extreme Graphics 2  
Display Size:  
**12.1"**  
Optical:  
None

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<sup>9</sup> <http://www.pcmag.com/article2/0,1759,1609467,00.asp>

<sup>10</sup> <http://www.pcmag.com/article2/0,1759,1609467,00.asp>

<sup>11</sup> <http://www.pcmag.com/article2/0,1759,1609467,00.asp>

<sup>12</sup> <http://www.pcmag.com/article2/0,1759,1609467,00.asp>

<sup>13</sup> [http://reviews.cnet.com/IBM\\_ThinkPad\\_X40/4505-3121\\_7-30733357.html](http://reviews.cnet.com/IBM_ThinkPad_X40/4505-3121_7-30733357.html)

<sup>14</sup> [http://reviews.cnet.com/IBM\\_ThinkPad\\_X40/4505-3121\\_7-30733357.html](http://reviews.cnet.com/IBM_ThinkPad_X40/4505-3121_7-30733357.html)

## **Hewlett-Packard:** Hewlett-Packard Tablet PC

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Model Selection #1

HP Compaq tc1100

*\*\*Author's Note: HP has offered all NCSU faculty, staff and student's the HP tc4200 at a cost of \$1650.00 rather than the cost noted in these reviews.*

“If we had a PC Magazine Most Improved Product of the Year Award, the HP Compaq TC1100 (\$2,399 direct) would be a memorable winner. Usually, new revs of products fix only one or two of the problems we found in older versions. The TC1100 did the opposite, fixing all but one.”<sup>15</sup> The balance of the laptop when it is swiveled around to use the keyboard is a bit “tippy” for the reviewer, who feels that this balance issue is the “one” un-fixed problems. After using this system for 8 weeks, the author feels differently. In fact, the balance is quite nice. Another of the re-vamped features is the unique Tablet design. “Unlike other convertible designs, the TC1100's keyboard not only swivels and hides for slate usage, it actually comes off altogether. When the keyboard is removed, the slate is a 3.1-pound device that's a joy to carry. With the keyboard, it's 4 pounds and still very easy to tote around.”<sup>16</sup>

“The major improvements are to the 10.4-inch screen. We love that it has extremely wide viewing angles all around. You'll like the look of the images on-screen no matter how you tilt and use the device. Even glare seems minimized, making it easier to read documents. We like that HP still kept a glass cover on the screen (most others use polymer, which will scratch, leading to false inputs on-screen...in addition to needing to be replaced every year or two] but also managed to update the digitizer from its lackluster old version (which lacked pressure sensitivity) to a pressure-sensitive one.”<sup>17</sup>

“Another major improvement is the move away from the Transmeta platform to the 1.0-GHz Pentium M. While the old HP tablet performed abysmally, the new one does quite well for a unit with a low-voltage chip. And it's not limited to Centrino wireless, using an 802.11b/g implementation. There's even a third type of wireless—Bluetooth—along with two USB 2.0 ports.

Look into adding one of HP's docking options to take advantage of an optical drive, monitor, and keyboard for desktop use. The built-in 40GB drive will be fine for most office applications. On the go, even with its less-than-perfect keyboard, the HP TC1100 is still better than a slate, avoiding kludgy USB keyboard solutions. And, to give credit, it's better as a slate than most pure slates, too, right down to its wonderful, thick stylus.”<sup>18</sup>

HP has gone to remarkable lengths to reverse its Tablet reputation in the market; the reviewers have noticed it, and this author is pleased to see that other professionals in this industry agree with her assessment of the HP Compaq tc1100 Tablet.

Specifications: Cost: \$2,399 direct

1.0-GHz Pentium M

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<sup>15</sup> <http://www.pcmag.com/article2/0,1759,1383088,00.asp>

<sup>16</sup> <http://www.pcmag.com/article2/0,1759,1383088,00.asp>

<sup>17</sup> <http://www.pcmag.com/article2/0,1759,1383088,00.asp>

<sup>18</sup> <http://www.pcmag.com/article2/0,1759,1383088,00.asp>

512MB DDR SDRAM  
40GB hard drive  
10.4-inch XGA display

## Hewlett-Packard Tablet PC

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Model Selection #2

HP Compaq tc 4200

“The HP Compaq tc4200 is an excellent choice if you're in the market for a convertible tablet. It has a terrific blend of components and performance with Intel's next-generation Centrino platform and a tough magnesium-alloy exterior. Strong build. Intel's next-generation Centrino. Dual pointing devices.”<sup>19</sup> The tc4200 does not feature a built in optical drive.

“If you've been wavering between notebook and tablet, waver no more: The HP Compaq tc4200 is a gem of a convertible. You get a full, powerful mainstream notebook—thanks to Intel's latest-generation Centrino platform—with the added bonus of a realistic pen-on-paper feel in tablet mode.

HP has made great strides since the last iteration of its tablet, the tc1100, which had a dreadful detachable keyboard. Though the [Toshiba Portégé M205](#) has a better resolution (SXGA+, 1,400-by-1,050) and weighs about the same. We clearly favor the tc4200's updated look and feel. For those consumers who aren't quite decided between tablet and notebook, the tc4200 is an excellent happy medium.”<sup>20</sup>

**Type:** General Purpose

**Operating System:** Microsoft Windows XP Tablet PC Edition

**Processor Family:** Pentium M

**Processor Speed:** 1.86 GHz

**RAM:** 512 MB

**Hard Drive Capacity:** 60 GB

**Hard Drive Speed:** 5400 rpm

**Graphics:** Intel Graphics Media Accelerator 900 GM

**Graphics Memory:** 128

**Primary Optical Drive:** External

**Wireless:** 802.11g

**Screen Size:** 12.1 inches

**System Weight:** 4.6 lbs

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Other websites used:

[www.dell.com](http://www.dell.com)

<http://www.lenovo.com/think/us/en/>

[www.pcmag.com](http://www.pcmag.com)

[www.cnet.com](http://www.cnet.com)

[www.hp.com](http://www.hp.com)

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<sup>19</sup> <http://www.pcmag.com/article2/0,1759,1758827,00.asp>

<sup>20</sup> <http://www.pcmag.com/article2/0,1759,1758840,00.asp>