



Computer Requirements for Bachelor of Science Students

Like anyone skilled in a craft, data science experts learn to use certain tools. In your case, these tools will be programming languages, data storage and retrieval technologies, and other software libraries required to interact with data, draw knowledge from data, communicate with others, and use data to train artificially intelligent systems. These tools will live in a toolbox, your laptop computer, but they will also allow you interact with external computing resources to process complicated, demanding workloads.

Your laptop will become as useful to you as well-equipped woodshop is to a woodworker. The work you do will not only build your skills but, over the course of your time at MSU, contribute to a growing collection of useful code that you can use throughout your career. With these goals in mind, it is important to consider several values when purchasing a laptop that fits with your lifestyle as a student. You will carry this laptop from class to class, thus portability, weight, and battery life become very important. You will be using this laptop for at least four years, and so high-quality components and ruggedness will be cheaper in the long run than purchasing several discount-store quality laptops over your time in college. You will be using this laptop for processor and storage intensive work, so you want to be sure it has a fast processor, has enough short-term memory (RAM) to handle in-memory data work, and enough fast storage (solid state hard drive) to download, store, process, and generate large amounts of data. Finally, you will be using this computer for other purposes such as videoconferencing, watching assigned online videos, word processing, and using spreadsheets. Thus, you will want to have a front-facing camera and be able to run Microsoft Word, Microsoft Excel, and other common commercial software products.

The following minimum requirements will be helpful if purchasing used equipment, but most new computers will exceed these. Generally, if you can afford a faster processor and additional RAM, go for it; you will appreciate the additional power this will give you.

Processor:	Windows: Intel Core Ultra 5 or AMD Ryzen 5 / Ryzen AI 5, or better. (An Intel Core i5, 12th generation or newer, is an acceptable minimum for used equipment.) Apple: any Apple-silicon Mac; M3 or newer recommended. Avoid the discontinued Intel-based Macs.
Memory / RAM:	16GB minimum; 32GB strongly recommended. Because many current laptops (including all Apple-silicon Macs and many thin Windows models) have memory soldered in and cannot be upgraded later, choose enough RAM at the time of purchase.
Storage:	512GB solid-state (NVMe SSD) minimum; 1TB recommended.
Operating System:	Microsoft Windows 11 (Windows 10 is no longer supported) or Apple macOS Sonoma (14) or newer.

Chromebooks are not recommended.

While these specifications will meet the requirements of Data Science courses at MSU, courses in other departments, including courses required uniquely within student concentrations, may have

specialized requirements. We recommend reading through the requirements provided by other colleges and by Mississippi State Information Technology Services:

<https://servicedesk.its.msstate.edu/TDClient/45/Portal/KB/Article/1195/Recommended-Student-Computer-Specifications>

If you are in doubt about a particular laptop's suitability, please email info@datascience.msstate.edu and we can help you think through the purchase.

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