

Recommended Specifications for Student Laptops

School of Architecture, Landscape, Planning and Environmental Policy

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Whether you are a new student to UCD or returning, you might be thinking of purchasing a new laptop for your coursework. This short note may help in making your choice and answer some questions you may have.

Do I need a computer to undertake the programme?

Yes. You will need access to your own computer, whether a laptop or desktop, throughout the course. *Tablets will not suffice alone.*

If you already have a computer it may suffice for the first year of the programme or longer. It need not meet the specifications detailed below but it should be reasonably up-to-date. Start using what you have and upgrade later if necessary. That way you have a better laptop later in the programme when requirements will be greater.

What hardware specification is required?

The following outlines both a minimum and 'better' specification for a recommended laptop. It is composed based on a considered balance between affordability, longevity and on the performance required to comfortably run applications that students will be expected to use within their respective academic programme.

Many laptop designs do not allow for the upgrade of some system components, so the specification you select may be fixed for the life of the laptop. Where budgets allow, a higher specification will ensure longevity.

Component description	Recommended specification	'Better' specification
Screen size ⁽¹⁾	15 inch	15 inch plus
Screen resolution	1920 x 1080	2560x1440 or above
Hard drive storage capacity ⁽²⁾	500 Gb SSD	1 Tb SSD/NVME
RAM	16 Gb	16 Gb plus
CPU/Processor ⁽³⁾	i7-11 th Generation	i7 -12 th Gen or i9-11 th Gen
Graphics processor ⁽⁴⁾	Intel Integrated Graphics	NVIDIA or AMD dedicated graphics processors
Operating System ⁽⁵⁾	Windows 11 or Mac OS	Windows 11 or Mac OS
Networking ^(6, 7)	Wi-Fi <i>ac</i> standard	Wi-Fi <i>ax</i> standard
Ports	HDMI ⁽⁹⁾ and/or USB-C ⁽⁸⁾	HDMI ⁽⁹⁾ and/or USB-C ⁽⁸⁾
Webcam and microphone ⁽¹⁰⁾	Yes	Yes

Additional considerations

- At the time of updating this note, gaming laptops have come down in price and offer very good value for generally high specifications. They are almost exclusively Windows-based PC's.
- Many find the use of the track pad on a laptop tiring and inaccurate for graphics work. The purchase of an external mouse is recommended.

- c) USB memory devices are still used by many even with Internet Cloud services widely available. Remember to match the USB connector type with those available on your laptop. **NEVER use such a device for backing up work! Use the Cloud or an external hard drive.**
- d) A protective sleeve or backpack/bag with padded laptop pocket will help prevent damage when commuting or moving around campus.
- e) Consider a backup strategy for your work from day one. All UCD students have access, through their student account, to large storage capacity on Google Drive which can be used for this purpose.
- f) Most problems that arise with computers happen within the first year or two. Try to get as long a guarantee period as you can, ideally at least two years.

Notes

- (1) 13, 14, 16 and 17 inch screen sizes are also common. If you prefer to use a larger screen size, an alternative strategy might be to consider an external monitor. Today laptops can generally support their own built-in screen and an additional larger monitor via HDMI or USB-C. A 24 or 27 inch external monitor works well for graphic/CAD work and is not overly expensive, depending on specification.
- (2) It is highly recommended to purchase a laptop with a solid state drive (SSD) or NVME type hard drive. These add considerably to a laptops performance and improve battery performance. Upgrading to such a hard drive can considerably improve the performance of an older laptop with a HDD hard drive for a very modest cost.
- (3) This recommendation is based on the most commonly used processors manufactured by Intel. However, AMD processors are also available, are equivalent, can be more cost effective and should also be considered. Examples are the AMD Ryzen 7 and 9 series.
- (4) Dedicated graphics processors from both NVidia and AMD are particularly useful where graphics and rendering work is to be undertaken. Note, their inclusion will impact on price.
- (5) Where possible, most software specified for use on academic programmes will run on Mac and Windows. However, it may be that not all packages are available for the Mac OS and their more recent M-series processors.
- (6) Wi-Fi adapters in laptops vary. The letters denoting Wi-Fi adapter speeds are *a, b, g, n, ac and ax*, with *ax* being the fastest. While *ax* is highly recommended and standard on most good quality laptops, your Wi-Fi router at home should be similar to achieve optimum speeds. Adapters are backwards compatible meaning that if your home router is *ac*, your laptop *ax* adapter will run at *ac* speed while connected. The UCD Wi-Fi system is *ac* throughout. If you have not updated your home router in a while and are running at *n* speed, for example, you should be entitled to an upgrade by your network provider at no cost. Wi-Fi speed will help when using online conference software like Zoom, Microsoft Teams, etc.
- (7) Ethernet network (cable) sockets are not required but do achieve faster speeds. Many laptops eliminate these to achieve a more compact size. They can be purchased as plug-in adapters at quite low cost if you want one. Ethernet ports are available throughout most rooms in UCD.
- (8) USB port types on laptops are in transition, from Type A to Type C. Apple and others are now Type C only as are many slimline PC's. Again, adapters to convert from Type A to C and vice versa can be purchased at low cost. A laptop with at least one Type C port is a good option to consider. If you buy a laptop with only Type C you can later purchase an adapter (or multi-port hub) for any legacy devices you may have, like USB memory sticks, etc.
- (9) HDMI ports are standard on many laptops and support the connectivity of a second monitor or other device. On newer and slimmer laptops with USB Type C only, this USB port can also be used for displays either directly where the monitor has a Type C connection or with an adapter or hub to the HDMI port.
- (10) While all laptops today come with a built-in webcam and microphone, if purchasing a desktop you will likely need to buy a webcam at least. Most of these have microphones built-in. There may be speakers build into your monitor. Such features are important for online teaching.