

# Recommended Specifications for Student Laptops

## School of Architecture, 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?

While it is not mandatory it is highly recommended that you have regular and free access to your own, whether a laptop or desktop. *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 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 the upgrade of some or all system components and so the specification you buy will likely 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 <sup>(1)</sup>	15 inch	15 inch
Screen resolution	1920 x 1080	1920 x 1080 or above
Hard drive storage capacity <sup>(2)</sup>	500 Gb	1 Tb
RAM	8 Gb	16 Gb
CPU/Processor <sup>(3)</sup>	i7 (8 <sup>th</sup> generation)	i7 (9 <sup>th</sup> generation)
Graphics processor <sup>(4)</sup>	Intel Integrated UHD Graphics 630	NVIDIA or AMD dedicated graphics processors
Operating System <sup>(5)</sup>	Windows 10 or Mac OS	Windows 10 or Mac OS
Networking <sup>(6)(7)</sup>	Wi-Fi <i>ac</i> standard	Wi-Fi <i>ac</i> standard
Ports	HDMI <sup>(9)</sup> and/or USB <sup>(8)</sup>	HDMI <sup>(9)</sup> and/or USB <sup>(8)</sup>
Webcam and microphone <sup>(10)</sup>	Yes	Yes

### Additional considerations

- 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.
- 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.**

- c) A protective sleeve or backpack/bag with padded laptop pocket will help prevent damage when commuting or moving around campus.
- d) 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.
- e) Most problems that arise with computers happen within the first year or two. Try get as long a guarantee period as you can, ideally at least two years.

## Notes

- (1) 13 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. A 24 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) type hard drive. These add considerably to a laptops performance and improve battery performance.
- (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 5 and 7.
- (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.
- (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 but is only recent to the market. While *ac* 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 *n*, your laptop *ac* adapter will run at *n* 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, 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 rooms in UCD.
- (8) USB port types on laptops are in transition, from Type A to Type C. Apple are now Type C only. Again, adapters to convert from Type A to C 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. There may be speakers build into your monitor. Such features are important for online teaching.