

## PhD Student Laptop Recommendations

For the 2020–21 academic year, the PhD Program strongly recommends that all students have a personal laptop computer powerful enough to support the demanding computational and video requirements necessary for coursework, as well as adequate storage to accommodate new software releases. All students will use statistical analysis software (R or Stata), spreadsheets (Microsoft Excel), word processing and email software. Many students will use geographic information system software (ArcGIS, QGIS) and programming languages (Python), and those interested in urban design will use additional specialized tools that require significant memory and computing power (Rhino, Grasshopper, Sketchup, Autodesk Suite, Adobe Acrobat Creative Suite, VRAY for Rhino 6, Sketchbook Pro).

The Bloustein School provides and maintains two high-end computer labs for classes, but is moving steadily toward a mobile computing environment. *Given the uncertainty regarding access to these facilities during the current COVID-19 pandemic, we advise students to ensure that their personal laptop is capable of running all software required for their chosen course of study.*

Laptops running the Microsoft Windows operating system are compatible with all of the software students are likely to use in the program. Although *we highly recommend the use of a Windows based computer*, it is feasible to use a laptop running the Apple Macintosh operating system. This will require the use of Bootcamp to install Microsoft Windows for running ArcGIS, which is used extensively and possibly for other programs. This will also require a Windows license and additional hard drive space.

Any questions related to these hardware or software requirements should be sent to [help@ejb.rutgers.edu](mailto:help@ejb.rutgers.edu).

**If you intend to take advanced GIS or graphics courses or use GIS in your research, then please use the minimum specifications with the recommended upgrades or use the GIS preferred specifications.**

### Minimum Windows Laptop Specifications

Intel Core i5 processor (i7 recommended)

Windows 10 x64

8GB of RAM (16 GB recommended)

256 GB SSD hard drive (512 GB SSD hard drive recommended)

Integrated graphics (discrete/dedicated graphics card recommended)

Screen Resolution 1080p

Webcam

Three-year warranty recommended

Total estimated cost: \$750

### Minimum Mac Laptop Specifications

MacBook Air or MacBook Pro with Intel Core i5 processor (i7 recommended)

macOS Sierra or newer

8GB of RAM (16 GB recommended)

256 GB SSD hard drive with at least 50GB of free space for Bootcamp (512 GB SSD hard drive recommended)

Integrated graphics (discrete/dedicated graphics card recommended)

Apple care recommended

Microsoft Windows License for Bootcamp (not needed for initial installation)

Total estimated cost: \$1800

### GIS Preferred Windows Laptop Specifications

Intel i7 or i9 processor

Windows 10 x64

16 GB of RAM

512 GB SSD hard drive

Discrete/dedicated graphics card with 2GB Video Memory (Nvidia Quadro or AMD Radeon Pro graphics cards with 4GB Video memory recommended)

Screen Resolution 1080p (4K recommended)

Webcam

Touchscreen is highly recommended for urban design, mouse needed for GIS

Three-year warranty recommended

Theft and damage insurance recommended

Total estimated cost: \$1500.

### GIS Preferred Mac Laptop Specifications

Macbook Pro with an Intel i7 or i9 processor

macOS Sierra or newer

16GB of RAM

512 GB SSD hard drive with at least 50GB of free space for Bootcamp

discrete/dedicated graphics card

Apple care recommended

Microsoft Windows License for Bootcamp (license not needed for initial installation)

Total estimated cost: \$2500

### Accessories

\*USB thumb drive (32 GB)

\*USB storage hard drive (500 GB)

\*Backup battery for extended mobile work sessions

Headset

\*these items are not required for remote learning

### Software

Most of the software packages used in the program are freely available under student licensing from manufacturers, trial licenses, open source initiatives, or through licenses provided by the Bloustein School. However, some software packages may need to be purchased by students. Incoming students should receive communications about what software is available for the upcoming school year at least 30 days in advance of the start of the fall semester. Please contact [help@ejb.rutgers.edu](mailto:help@ejb.rutgers.edu) if you plan on purchasing any software prior to receiving such communications. Some packages that may need to be purchased include:

Stata/IC \$94 per year

**Students who anticipate taking electives in Graphics may also need to purchase the following software:**

Sketchup Pro: \$55 per year

Adobe Creative Cloud: \$20 per month

Rhino: \$195 one-time purchase

V-Ray for Rhino (Students) \$99 per year