The College of Architecture requires that all incoming students have a serviceable laptop computer and suggests a minimum system configuration. Because the requirements for a useful laptop vary from program to program, the suggestions below supersede College requirements and apply only to students in the Bachelor of Science in Visualization degree program.

It is important to note that no student will be denied admission to the College because of an inability to provide a laptop.

As in most programs, computing requirements are uneven, based on the course and the individual instructor. In Visualization, computational intensive applications are rendering, video editing, programming and real-time interaction. Of these, rendering (creating visual images from 3D models) is the most resource intensive. Coupled with the requirement to produce intermediate animations/images for review and critique, it is easy to see that the fastest affordable systems can be insufficient to meet demand. However, students can – and do – find moderately priced systems that, with careful planning and judicious use of resources, are sufficient to meet program needs.

Not all classes require a high level of computing power, so it’s helpful to understand when those courses occur in the curriculum. Looking at the four major application areas, the chart below indicates when those resources will be most in demand.

“Light” demands can be accomplished with very moderate resources. A functional laptop even 2 or 3 years old will be sufficient for the first year in the program. In the second year of the program and beyond, usage increases substantially. As technology progresses, we certainly expect that similar equipment purchased next year will either be more capable, cheaper or a combination.

For that reason, if you have a usable laptop for the first year of the program, we recommend delaying a major laptop purchase until the beginning of the second year. As the useful life expectancy of a computer system is 3 years, this approach will provide the highest level of computing resources during the time of greatest need. Remember, the major advantage of a laptop is its portability, not its computational power. The Visualization Department also provides students with access to a high performance network of computational resources for large projects.

PC or Mac? Both platforms are used in the program. The division is soft as required software is available for both platforms. Both platforms have advantages and disadvantages so the choice is more a matter of personal preference than programmatic requirements. Students will have opportunity to use both platforms in the department labs. Additionally, Linux operating system is used for the programming classes and some computing electives.

Requirements that should be met by either platform are listed on the next page.

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<th></th>
<th>Rendering</th>
<th>Video Editing</th>
<th>Programming</th>
<th>Interactive</th>
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<tbody>
<tr>
<td>Freshman</td>
<td>None</td>
<td>None</td>
<td>Light</td>
<td>Light</td>
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<tr>
<td>Sophomore</td>
<td>Moderate</td>
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<tr>
<td>Junior</td>
<td>Heavy</td>
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<td>Senior</td>
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Note: parentheses indicate that requirements are variable depending on student interests and elective classes.
1. A 6 core Intel i7 system with a dedicated graphics card (not imbedded graphics chip on motherboard), 16GB of ram or higher, and a 512GB hard drive or better
2. Wifi
3. On-board camera
4. External 3 button mouse
5. External USB hard drive (500 GB minimum)
6. Nvidia graphic chip (recommended for future software which includes GPU rendering capability but not a firm requirement as ATI graphic chips have a similar but incompatible functionality)

Several additional devices are useful at various times throughout the program. These are not required, but increase productivity. Graphic design classes, digital painting and related classes frequently use a Wacom Tablet as an input device. These courses are generally taken during the 3rd and 4th years in the program but may occur during the second year for change of majors and transfer students. External drives that are USB powered are more convenient and flexible than drives that require an external power source. This requirement will be more prevalent in the 3rd and 4th years of the program.

If the laptop is the students personal system, there are additional devices that can make the system more productive. An external keyboard and full sized monitor actually increases the speed with which the system can be used. A spare battery can be useful, however, all the studios are equiped with power drops.

**SOFTWARE REQUIREMENTS**

*It is completely possible to complete the Bachelor of Science in Visualization program using only open source software.*

However, students may choose to use industry standard commercial software based on personal preference. Most commercial software is available as low-cost student versions. Some commercial software is available through the university at discount, consider waiting until the need exists so that the latest version of the software can be purchased.