CMAS Student Computer Requirements

A guide for entering students

Department of Construction Management and Architectural Studies
Lyles College of Engineering · California State University, Fresno

Academic Year 2026–27

Welcome to CMAS

Congratulations on joining the Department of Construction Management and Architectural Studies (CMAS). Whether you are entering our Bachelor of Science in Construction Management (BSCM), Bachelor of Science in Architectural Studies (BSAS), or Master of Science in Construction Management (MSCM) program, you will work with the same professional software our industry partners use every day. This guide helps you choose a computer that will serve you well from your first course through graduation.

Please read this document carefully before purchasing a computer. If you already own a laptop, use the specifications below to check whether it meets our requirements. If a purchase is not feasible, the Resources section on the last page lists several pathways Fresno State has built to support you.

A note on affordability and access

No student is denied admission to or success in our programs because of the cost of a computer. Fresno State offers multiple pathways to make sure every CMAS student has access to the technology they need:

- Cost of Attendance adjustments through the Office of Financial Aid and Scholarships, which can fold a computer purchase into your financial aid package.
- Semester-long laptop loans from the Library Tech Lending Center, free of charge.
- Open computer labs in the Lyles College of Engineering and across campus, with all required software pre-installed.
- Education-pricing portals from Dell, Apple, and Lenovo for discounted purchases.
- Annual general and CMAS-dedicated scholarships.

Details and links are on the last page. If you have questions before classes begin, contact the CMAS department office.

About this Guide

Our department offers three degree programs, and every CMAS student will use industry-standard software for design, modeling, estimating, scheduling, and project management. To support this coursework, all incoming and continuing CMAS students are expected to have access to a laptop that meets the requirements in this guide. Tablets and other mobile devices can be useful supplements, but cannot replace a laptop as your primary computing device.

The hardware requirements below are written to last you through your full course of study — typically four years for undergraduates and two for MSCM students. Industry-standard tools become more demanding each year, so a slightly stronger laptop now will usually outlast a barely compliant one.

Operating System

The construction and architecture industries run on Microsoft Windows. The professional tools you will use — Autodesk Revit, Navisworks, Construction Cloud, Bluebeam, Procore, Primavera, and the rest — are built first for Windows, and several are Windows-only. For this reason, Windows 11 Pro 64-bit is the required operating system for CMAS students.

Mac users

BSCM and MSCM students: A Mac is strongly discouraged. Most CM software either will not run on macOS or requires Parallels Desktop to run Windows in a virtual machine — adding cost, complexity, and performance loss. If you must use a Mac, plan from day one for a Parallels license and a Windows 11 Pro license on top of the Mac and expect occasional friction.

BSAS students: A MacBook Pro is acceptable for first-year architectural design coursework, particularly for Adobe Creative Cloud, sketching, and rendering. By the time you reach upper-division BIM and construction-integration courses, you will still need to run Windows-only software, so plan for Parallels Desktop and Windows 11 Pro as part of your overall investment.

Hardware Requirements

The table below states our minimum requirements and our recommended specifications for a CMAS laptop. The minimum will run all required software adequately for coursework; the recommended specification handles large BIM models, real-time visualization, and multi-application workflows more comfortably and is likely to remain capable through the end of your program.

Component	Minimum	Recommended
Operating System	Windows 11 Pro 64-bit	Windows 11 Pro 64-bit
Processor (CPU)	Intel Core i7 (12th gen or newer) or AMD Ryzen 7 (5000 series or newer), 8 cores, 2.5 GHz base	Intel Core i9 / Ultra 9, AMD Ryzen 9, or workstation-class (Intel Xeon, Ryzen Threadripper PRO)
Memory (RAM)	16 GB DDR5	32 GB DDR5 (64 GB for BSAS rendering work)
Storage	512 GB NVMe SSD (PCIe)	1 TB NVMe SSD (PCIe Gen 4 or Gen 5)
Graphics (GPU)	Dedicated NVIDIA GeForce RTX or Quadro / RTX Pro with 6 GB VRAM, DirectX 12, Autodesk-certified driver	NVIDIA GeForce RTX 4060 / 5060 or higher, or RTX Pro with 8 GB+ VRAM

Component	Minimum	Recommended
Display	15-inch, 1920 × 1080 (FHD), IPS panel	15.6 to 17-inch, 1920 × 1200 or higher, color-accurate panel; VR-ready for BSAS
Ports	USB-C / Thunderbolt 4, HDMI, SD card reader, USB-A	Same, plus a Thunderbolt-compatible dock for desk use
Webcam & audio	Built-in 720p webcam, microphone, and speakers	1080p webcam with privacy shutter; external headset for online classes
Wireless	Wi-Fi 6 (802.11ax) and Bluetooth 5.0	Wi-Fi 6E or Wi-Fi 7, Bluetooth 5.3+
Battery life	At least 8 hours real-world use	10+ hours; fast-charging supported
Warranty	1-year manufacturer warranty	3- to 4-year warranty with accidental damage coverage

Program-Specific Guidance

BSCM and MSCM students

A Windows 11 Pro laptop in the minimum-spec column will get you through your coursework. Where to spend extra: RAM (32 GB) and a stronger dedicated GPU. Both pay off the most when you work with large federated BIM models in Navisworks, run 4D scheduling simulations, or have multiple Autodesk Construction Cloud projects open at once. Storage matters less than RAM and GPU; you can always offload completed projects to OneDrive or an external SSD.

BSAS students

Architectural Studies coursework is the most GPU- and memory-intensive in the department. Real-time visualization (Enscape, Twinmotion, Lumion) and rendering benefit substantially from 32–64 GB of RAM and a higher-end RTX-class GPU. A color-accurate display is worth the modest premium; a calibrated screen makes a real difference when you are presenting boards. A drawing tablet (Wacom or equivalent) or a 2-in-1 device with an active stylus is useful for sketching and markup, but is not required.

What Will Not Meet These Requirements

Devices to avoid as your primary computer

These devices cannot run the software CMAS coursework requires. Buying one as your only computer will lead to delays, frustration, and likely a second purchase.

- **Chromebooks.** ChromeOS cannot run Autodesk products, Bluebeam, Procore desktop apps, or Primavera. Useful only for browsing and email.

- **iPads or Android tablets as primary devices.** Excellent for field markup with Bluebeam Revu iPad, photo capture, and sketching — but cannot serve as your main computer.
- **Surface laptops with Qualcomm Snapdragon ARM processors.** Microsoft introduced Snapdragon-based Surface Pro and Surface Laptop models in 2024. Most AEC software either will not install or runs slowly through emulation. If you choose a Surface device, choose an Intel-based model.
- **Mac laptops without Parallels and a Windows license.** BSCM and MSCM coursework will not run natively on macOS. See the Operating System section.
- **Older laptops with 8 GB RAM, integrated-only graphics, or HDD (not SSD) storage.** BIM software will install, but be too slow to use productively.

Software You Will Use

All of the software below is available to you at no cost or at a significant discount through Fresno State and industry-education partnerships. Do not purchase a retail version of anything without first checking the source listed here.

Productivity and core tools

Software	Use	How to access
Microsoft 365 (Word, Excel, PowerPoint, OneDrive, Teams, Copilot)	Documents, spreadsheets, presentations, cloud storage, video meetings, AI assistant	Free for students; sign in with your @mail.fresnostate.edu account at office.com
Adobe Acrobat Pro	PDF reading, light editing	Through Fresno State licensing; see Technology Services

BIM, design, and visualization

Software	Use	How to access
Autodesk Revit (Architecture, Structure, MEP)	Building information modeling for design and coordination	Free education license at autodesk.com/education
Autodesk Navisworks Manage	Model federation, clash detection, 4D scheduling	Free education license at autodesk.com/education
Autodesk AutoCAD	2D drafting	Free education license at autodesk.com/education
Autodesk Construction Cloud (Docs, Build, BIM Collaborate, Takeoff)	Cloud-based document control, field execution, model coordination, quantity takeoff (replaces BIM 360 and PlanGrid)	Provided through course enrollment
Trimble SketchUp	Conceptual modeling	Education license at sketchup.com/education
Rhinoceros 3D + Grasshopper	Parametric and complex-form modeling (BSAS focus)	Student discount at rhino3d.com/students
Enscape, Twinmotion, Lumion	Real-time architectural visualization and rendering (BSAS focus)	Education versions free or discounted
Adobe Creative Cloud (Photoshop,	Image editing, vector graphics, layout, portfolio production (BSAS focus)	Education pricing at adobe.com/creativecloud/buy/students

Software	Use	How to access
Illustrator, InDesign, Acrobat Pro)		

Estimating, takeoff, and scheduling

Software	Use	How to access
Bluebeam Revu	PDF-based plan review, markup, takeoff, and collaboration	Provided through course enrollment
Autodesk Takeoff (in Construction Cloud)	2D and model-based quantity takeoff	Provided through course enrollment
Oracle Primavera P6 / Primavera Cloud	Critical-path scheduling for large projects	Provided through course enrollment
Microsoft Project	Scheduling for smaller projects	Through Microsoft 365 or course licensing
RSMeans	Construction cost data	Library access; ask your instructor

Project management and field tools

Software	Use	How to access
Procore	Industry-leading construction project management platform; you will see it on virtually every internship	Free student account through procore.com/educationaccess
Autodesk Build (mobile app)	Field execution: punch lists, RFIs, daily reports	Included with Construction Cloud

AI tools

Generative AI tools are now standard in professional practice and in the classroom. Microsoft Copilot is included with your Fresno State Microsoft 365 license and is integrated across Word, Excel, PowerPoint, and Teams. ChatGPT EDU license is provided via the CSU agreement with OpenAI. Always follow your course syllabus and Fresno State academic integrity policy regarding AI use; rules vary by instructor and assignment.

Tutorials and self-paced learning

Many software vendors provide students with free tutorials. Autodesk's learning hub (autodesk.com/learn) is a strong starting point for Revit, AutoCAD, and Navisworks. The CMAS department also maintains technology dashboards with curated tutorials on Bluebeam, Primavera Cloud, and Procore. Ask your faculty advisor or course instructor for the current links.

Other Useful Gear

None of the items below is required, but each one can make your studio and coursework experience meaningfully better.

- **External monitor and dock.** A 24-inch or larger external monitor and a Thunderbolt or USB-C dock transform BIM and rendering work at your desk.
- **Three-button mouse with scroll wheel.** Trackpads are workable, but a real mouse is far more productive in Revit, Navisworks, and Rhino.
- **External storage.** A 1 TB external SSD for backups, or a 64 GB USB-C flash drive for transferring large models.
- **Headset with microphone.** For online sessions, Zoom-based industry meetings, and recording presentations.
- **Smartphone with Duo Mobile installed.** Required for Fresno State multi-factor authentication and useful for field photos, BIM 360 mobile, and Procore mobile.
- **Drawing tablet (BSAS).** A Wacom Intuos or equivalent helps with sketching and markup; a 2-in-1 laptop with an active stylus is an alternative.

Resources for Fresno State Students

Fresno State has built several pathways to help every student access the technology they need. If any part of this guide raises concerns about cost or access, please use these resources—they exist for exactly this purpose, and using them is not unusual.

Financial aid pathways

Office of Financial Aid and Scholarships. A computer purchase for academic use can be added to your Cost of Attendance, which may increase your financial aid eligibility. This adjustment is most commonly funded through additional federal loans or work-study, and in some cases through grants or scholarships. Speak with a financial aid counselor about the process before purchasing. Email financialaid@mail.fresnostate.edu from your Fresno State email account or visit studentaffairs.fresnostate.edu/financialaid.

CMAS scholarships. Through our Industry Advisory Board and the CM Excellence Endowment, the department awards scholarships each year. Watch for application announcements from the department, or ask your faculty advisor.

Free laptop loans

Fresno State Library Tech Lending Center. The library lends Dell Windows laptops, Apple MacBook Pros, and Microsoft Surface Books to current students for the full semester, at no charge. You will need your Fresno State Student ID and one additional photo ID. Reserve in advance through the online request form. Location: 1st Floor, North Wing of the library. Phone: 559.278.2551. Online: library.fresnostate.edu/tech/tech-lending.

DISCOVERe Mobile Technology Program. If you are enrolled in a DISCOVERe-designated course, you can request an iPad loaner for the full semester at the DISCOVERe Hub, 1st floor of the library. Mobile hotspots are also available. See academics.fresnostate.edu/discovere.

Computer labs and study spaces

The Lyles College of Engineering maintains computer labs with all required CMAS software pre-installed. The Henry Madden Library has over 150 additional computers across its first three floors. These labs are available whenever you need a more powerful machine than your laptop, when your laptop is in for repair, or when you would simply prefer to work on campus.

Education-pricing vendors

If you choose to purchase a laptop, the vendors below offer education pricing to CSU students. Compare prices and warranties across at least two vendors before deciding.

- **Dell University:** dell.com/csu
- **Apple Education Store:** apple.com/us-edu/shop
- **Lenovo Education:** lenovo.com/us/en/education
- **Microsoft Education Store:** microsoft.com/store/b/education
- **Kennel Bookstore:** bkstr.com/kennelstore

Technical support

Fresno State Technology Service Desk. For help with your Fresno State account, email, Canvas, Wi-Fi, Duo, and software access. Call 559.278.5000 or visit help.fresnostate.edu.

Frequently Asked Questions

I already own a laptop. Do I need to buy a new one?

Not necessarily. Compare your laptop against the Minimum column in the hardware table. If it meets the minimum, you are in good shape — especially if it has 16 GB of RAM, an SSD, and any kind of dedicated graphics. If it falls short on only one or two items, an upgrade (more RAM, a faster SSD) may be cheaper than a new machine. If it falls short on the processor or the graphics card, you will likely need to replace it before upper-division coursework.

Should I buy now or wait until after orientation?

Buy before classes start so you can install software during the first week. If you need to apply for a Cost of Attendance adjustment, begin that conversation as early as possible — ideally, the summer before you start — because the adjustment process takes time.

What is a realistic budget?

A laptop that meets our minimum specification can be found for roughly $1,200 to $1,800 with education pricing. A recommended-spec laptop typically costs between $1,800 and $3,000. Adding a Thunderbolt dock, external monitor, mouse, and a 3-year warranty with accidental damage coverage raises the total by another $400 to $700. If this is outside your budget, please review the Resources section — the financial aid pathway and the library loaner program are both meaningful options.

My internship company gave me a Mac. Can I use it for class?

Many large general contractors and design firms now standardize on Windows laptops because of the software stack. If your employer issued you a Mac, you can use it for some coursework, but plan for Parallels and a Windows 11 Pro license to run the Windows-only tools.

Will the requirements change while I am a student?

Yes, but slowly. We review this document every spring and publish updates each summer for the next academic year. The hardware floor rises by roughly one generation every two to three years. A laptop that meets the recommended specification today should serve you through graduation.

Who do I contact with questions?

Contact the CMAS department office. For general questions about this document or our programs, write to the Department Chair through the CMAS website. For account, Wi-Fi, or software-access issues, contact the Technology Service Desk (above).

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This document is reviewed annually. Specifications and software listings may be updated for the following academic year.