

Overview of Orthotics and Prosthetics

What Do Orthotists & Prosthetists Do?

- **Orthotists (CO)** design and fit external braces and supports (orthoses).
- **Prosthetists (CP)** design and fit artificial limbs for individuals with limb loss.
- **Certified Prosthetist-Orthotists (CPO)** are trained in both disciplines.
- Combine engineering, anatomy, biomechanics, materials science, and patient care.
- Evaluate patients (strength, range of motion, gait) and iteratively adjust devices.
- Work in hospitals, private practices, rehabilitation facilities, VA systems, and industry.

Why This Path Fits with Biomedical Engineering

- You will graduate with a strong foundation in biomechanics and human movement.
- You will have experience with materials, modeling, and design.
- This is an opportunity for hands-on, applied engineering applied directly to patient care.
- This combines technical problem-solving with long-term patient relationships.

Education & Certification Pathway

In the United States, a master's degree in orthotics and prosthetics (or prosthetics and orthotics) is the minimum educational standard to become a certified prosthetist/orthotist (CPO) practitioner. The number of accredited master's programs changes over time - [view the current list of master's programs on the NCOPE's website](#). The pathway to become a CPO includes:

1. Complete a CAAHEP-accredited master's degree in Orthotics & Prosthetics.
2. Complete an NCOPE-accredited clinical residency.
3. Pass certification exams through the American Board for Certification (ABC).

Career Outlook

- Projected job growth ~13% through 2034, much faster than the average growth.
- Strong employment placement after residency.
- Growing demand due to aging population and diabetes-related limb loss.

What if I want to work in this field without pursuing a master's in orthotics and prosthetics?

Biomedical engineers can work in prosthetics and orthotics without becoming a CPO practitioner by designing, testing, and improving assistive devices through industry roles at medical device companies, or by supporting clinicians in biomechanics, rehabilitation technology, or clinical support roles (e.g., gait analysis or device evaluation). The key distinction is that CPOs provide direct patient care, while BMEs focus on the technology, innovation, and systems that enable those clinical solutions. You can view an example plan for this option ("Prosthetics or Implants/Devices") on the [Biomechanics and Biomaterials website](#).

Applying for a Master's Degree in Orthotics and Prosthetics

Ways to Gain Experiential Preparation (to Strengthen Application)

- Shadow or volunteer in an orthotics/prosthetics clinic. Some programs specify a minimum of 50-150 hours with a certified orthotist/prosthetist. Local clinics in the Iowa City area include: **Limb Lab, Hanger, and Clark & Associates.**
- Participate in biomechanics or rehabilitation-focused research labs.
- Gain fabrication exposure (molding, laminating, thermoforming).
- Seek patient-facing or clinical experiences.

Application Process

- Research accredited programs early to confirm prerequisite requirements, which vary by school.
- Applications typically require three letters of recommendation, including one from a certified orthotists/prosthetist.
- Apply through individual graduate programs or via OPCAS (centralized application service).
- Competitive applicants demonstrate strong academics, clinical exposure, leadership, teamwork, and communication skills.
- Early application is strongly recommended.

Advising Resources at Iowa

- After determining the requirements of the master's program you wish to pursue, meet with your BME faculty advisor to plan prerequisites and sequencing.
- Consult pre-health advising if considering related healthcare careers. (Unlike pre-med or pre-PA, there is not a specific pre-prosthetics/orthotics declaration).

Common Prerequisite Courses (varies by program)

- Many programs cite a minimum overall GPA around 2.7–3.0, with successful applicants often closer to 3.3–3.5.
- Some programs require a minimum *science* GPA or a minimum grade (often B or B-) in each prerequisite course.

Typical Prerequisite	Recommended course taken by BME students
General Biology (with lab)	BIOL:1411
Anatomy & Physiology	HHP:2400 & HHP:2100*
General Chemistry (with lab)	CHEM:1110
Physics (with lab)	PHYS:1611 & PHYS:1612
College Algebra or higher	MATH:1550
Statistics	BIOS:4120 or STAT:3510
Additional Recommended Coursework	
Materials Science	ENGR:2720 (already a focus area requisite for Biomech & Biomat)
Psychology	General, developmental, and/or abnormal, depending on school
Business Management	MGMT:2100
3D modeling	BME:2710
Sculpture	SCLP:2810

Psychology, MGMT, and SCLP courses can be part of your Gen Ed requirements. All other courses listed above are either already included in your required coursework for BME, or can count as focus area electives.

- * Note, some programs require that you take courses in Anatomy and Physiology that include labs. Please determine the necessary requirements for your chosen master's program and discuss with your advisor whether you also need to include HHP:2410 and HHP:2110, the 1 SH labs that correspond with these physiology and anatomy courses.