HEALTH SCIENCE, MASTER OF SCIENCE

Orthotics and Prosthetics Option (64-66 units)

Orthotics and prosthetics is a specialized health care profession, which combines a unique blend of clinical and technical skills to care for patients who have neuromuscular and musculoskeletal disorders and/or patients who have a partial or total absence of a limb. Orthotists and prosthetists provide treatment that allows these individuals to lead more active and independent lives by collaborating with other members of the health care team. This work requires substantial clinical and technical judgment.

The principles of biomechanics, pathomechanics, gait analysis, kinesiology, anatomy and physiology are crucial to the practitioner's ability to provide comprehensive patient care and a positive clinical outcome. Patient assessment, treatment and education are part of the practitioner's responsibility and require collaborative communication skills.

In addition to performing orthotic and prosthetic procedures, the orthotists and prosthetists are involved in clinical decision-making and patient education. The scope of practice for orthotists and prosthetists includes, but is not limited to:

- Patient Assessment- Perform a comprehensive assessment of the patient to obtain an understanding of the patient's orthotic/prosthetic needs.
- Formulation of the treatment plan- Create a comprehensive orthotic/prosthetic treatment plan to meet the needs and goals of the patient.
- Implementation of the treatment plan- Perform the necessary procedures to deliver the appropriate orthotic/prosthetic services, which include fabrication of the devices required.
- Follow-up treatment plan- Provide continuing patient care and periodic evaluation to assure/maintain/document optimal fit and function of the orthosis/prosthesis.
- Practice management- Develop, implement and/or monitor policies and procedures regarding human resource management, physical environment management, business/financial management and organizational management.
- Promotion of competency and enhancement of professional practice- Participate in personal and professional development through continuing education, training, research and organizational affiliations.

Pre-Admission Disclosure for Academic Programs Leading to Licensure or Credentialing

Admission into programs leading to licensure and credentialing does not guarantee that students will obtain a license or credential. Licensure and credentialing requirements are set by agencies that are not controlled by or affiliated with the CSU and requirements can change at any time. For example, licensure or credentialing requirements can include evidence of the right to work in the United States (e.g., social security number or tax payer identification number) or successfully passing a criminal background check. Students are responsible for determining whether they can meet licensure or credentialing requirements. The CSU will not refund tuition, fees, or any associated costs, to students who determine subsequent to admission that they cannot meet licensure or credentialing requirements. Information concerning licensure and credentialing requirements are available from **Elisabeth Rollo: Los Alamitos - (310) 243-3300**

Admission Requirements

To be eligible for consideration as a candidate in this option, an applicant must meet the following minimum requirements:

1. A bachelor's degree, from an accredited college or university, preferably in an allied health or related major and a GPA of 3.0 or above in the last 60 semester or 90 quarter units of upper division coursework may apply.
2. Familiar with hand tools, light duty power equipment, and knowledge of materials used in Orthotics and Prosthetics; prior working or volunteer experience is an important selection criterion.
3. Successful completion of all orthotic and prosthetic option prerequisite courses with a grade of "B" or better. The prerequisites are listed in the requirements for the M.S. in Health Science, Orthotics and Prosthetics Option.
4. Has met the TOEFL requirement with a minimum score of 550 on the paper test or a minimum score of 80 on the Internet test.

Admission Procedures

Submit application directly to the National Commission for Orthotics and Prosthetics Common Application System:

1. M.S. in Health Science, Orthotics and Prosthetics Program Application is available at http://portal.opcas.org. (Common Application System) Applications to the program are accepted one time each year. Students planning to seek admission should submit both applications including all supporting materials no later than December 31 preceding a summer semester admission to the program;
2. a copy of official transcripts;
3. GRE Test scores;
4. a letter of intent;
5. three letters of recommendation must be submitted directly to the Common Application System.
6. A subsequent interview by a panel consisting of orthotics and prosthetics faculty.
7. Upon admittance to the program applicants must submit a complete graduate admission application to the University at calstate.edu/apply (http://calstate.edu/apply/). Please note: Application deadlines are subject to change without notice. Check with the O&P Program for the deadlines of the current

Program Requirements

Students must complete the program with an average GPA of at least 3.0. All other university requirements for the master's degree in this University Catalog must be met (see the Graduate Degrees and Post Baccalaureate Studies (https://catalog.csudh.edu/general-information/graduate-degree-postbaccalaureate-studies/) section of University Catalog). HEA 445 Material Science and Laboratory Skills and HEA 455 Applied Anatomy must be passed prior to Fall semester of year 1 to continue in the program sequence; if not passed, the student will have

one additional chance to retake the course with a passing grade, and restart in Fall semester of the following year.

All graduate students are required to satisfy the Graduation Writing Assessment Requirement (GWAR) within the first 9 semester units of coursework in accordance with the established policies of the University as described in the Graduate and Postbaccalaureate section of the University Catalog. Upon completion of the second semester after admission, or 22 units of approved coursework, the student must complete the Graduation Advisement and Advancement to Candidacy Form.

To be Advanced to Candidacy, the student must have:

1. achieved Graduate Classified Standing;
2. maintained a grade point average of 3.0 or better in all graduate coursework to be used for the degree;
3. completed the Graduation Writing Assessment Requirement (GWAR);
4. completed the Graduation Advisement and Advancement to Candidacy Form in consultation with the graduate coordinator; and
5. applied and paid graduation fees.

Capstone Activities

Degree students must complete a series of comprehensive exams/activities. The Capstone Activities involve creative application of theory and practice with real life clients who require orthotic or prosthetic intervention. The comprehensive exams are given over a 4-week period. They involve patient interaction and treatment, laboratory practical, written simulation, oral defense, gait analysis and written exams. Failure to achieve a passing score, after the third attempt, will result in a dismissal from the program.

Incomplete Courses

Students will not be permitted to enroll in new courses if they have two or more incomplete courses on their record. All other university rules about incomplete courses also apply.

Location and Registration

The Orthotic and Prosthetic Option is conducted off site at a CSUDH annex in Los Alamitos, CA. An established clinical affiliation exists with the nearby Veterans Administration Health Care System in Long Beach, CA. All courses in the Option are offered at the CSUDH Center for Orthotics and Prosthetics at the Los Alamitos annex.

Prerequisites and Course Requirements

The Prerequisites and Course Requirements conform to the Standards and Guidelines for the Accreditation of Educational Programs in Orthotics and Prosthetics, published by the National Commission on Orthotic and Prosthetic Education (NCOPE):

College-level Prerequisites: (Semester Units)

- Biology/Life Sciences - lecture with lab - (4 units)
- Chemistry - lecture with lab - (4 units)
- Physics - lecture with lab -(4 units)
- Human Anatomy & Physiology -lecture with lab - (4 units)
- Introductory Psychology -lecture - (3 units)
- Psychology: (Either) Human Growth and Development or Abnormal Psychology (3 units)
- Statistics -lecture - (3 units)
- GRE- the GRE General Test scores provide a common measure for comparing the qualifications of applicants. Admission to the M.S. Option is not solely based on GPA and GRE scores; it also includes letters of recommendation, letter of intent, and the student's background and knowledge of the orthotic and prosthetic profession.

In addition, the following courses are recommended but not required:

- Ethics
- Business Administration

Requirements

Code	Title	Hours
Upper Division Courses		
HEA 445	Material Science and Laboratory Skills	2
HEA 455	Applied Anatomy	1
Core Courses		
HSC 501	Advanced Research Methods in Health Science	1-3
HEA 508	Clinical Pathology for Orthotics and Prosthetics	3
HEA 516	Clinical Evaluation Tools in Orthotics and Prosthetics	2
HEA 535	Practice Management for Orthotics and Prosthetics	1
HEA 536	Psychological Aspects of Disability	1
HEA 545	Normal Gait and Biomechanics of Movement	2
HEA 547	Gait Analysis and Pathomechanics for O & P	1
HEA 580	Applied Technologies in Orthotics and Prosthetics	1
HSC 598	Directed Research	1
Clinical Courses		
HEA 435	Orthotics Soft Goods Fitters Course	1
HEA 540	Orthotic Management of the Upper Limb	3
HEA 541	Orthotic Management of the Lower Limb I	4
HEA 542	Orthotic Management of the Lower Limb II	5
HEA 544	Orthotic Management of the Spine	4
HEA 551	Prosthetic Management of the Upper Limb	3
HEA 552	Prosthetic Management of the Lower Limb I	4
HEA 554	Prosthetic Management of the Lower Limb II	5
Clinical Rotation		
Complete Clinical Rotation courses including the following: [1]		9-11
HEA 596	Clinical Practicum in Orthotics and Prosthetics	
Capstone Activities		
HEA 592	Subspecialties in Orthotics and Prosthetics	2
HEA 593	Culminating Activity in Orthotics and Prosthetics	3
Total Hours		**59-63**

[1] 9 units required, 2 units optional.

Program Learning Outcomes

Master of Science Health Science: Orthotics and Prosthetics Learning Outcomes

1. Perform a comprehensive assessment of the patient to obtain an understanding of the patient's orthotic/prosthetic needs.

2. Formulate a comprehensive orthotic/prosthetic treatment plan by analyzing and integrating information from patient assessment to meet the needs and goals of the patient.
3. Implement the prescribed orthotic/prosthetic treatment plan by performing the necessary procedures to deliver the appropriate orthotic/prosthetic services, including fabrication.
4. Follow up the treatment plan by providing continuing patient care and periodic evaluation to assure/maintain/document optimal fit and function of the orthosis/prosthesis.
5. Practice management effectively by developing, implementing and/or monitoring policies and procedures regarding human resources, the physical environment, business and financial practices, and organizational management.
6. Promote competency and enhance professional practice by participating in personal and professional development through continuing education, training, evidence-based research, and organizational affiliations.
7. Maintain a safe and secure laboratory and clinical environment on behalf of O&P patients, while ensuring structural safety, comfort, fit and patient understanding about the use and maintenance of the orthosis/prosthesis.
8. Utilize Universal Precautions and Personal Protective equipment in compliance with OSHA's Hazard Communication and blood borne pathogen rulings.
9. Practice relationship-centered, culturally sensitive care with individuals and families during all phases of O&P interaction, with psychosocial awareness of patients' age, educational status, economic status, and social support.
10. Work in interdisciplinary teams during interaction with patients, peers, colleagues, supervisors, and other health team members.
11. Exhibit ethical behavior in all professional activities during interaction with patients, peers and colleagues, teachers and supervisors, and health team members/affiliates.
12. Provide evidence-based, clinically competent care by applying knowledge from theory, research, new sciences and foundation courses such as kinesiology, anatomy, biomechanics, gait, and material science to the practice of orthotics/prosthetics.
13. Articulate how the theoretical concepts learned within the didactic coursework are exemplified in clinical settings in the domains of patient evaluation, formulation of the treatment plan, follow-up, documentation, communication, and business management functions.