

ORTHOTICS AND PROSTHETICS PROGRAM

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Course Descriptions

Advanced Biomechanics and Clinical Outcomes (OPABM-63201)

Advanced Biomechanics and Clinical Outcomes continues the study and practice of evaluating and quantifying human movement through simple and complex means begun in Biomechanics Fundamentals. The first part of the class is dedicated to established, “low-tech,” clinically-relevant measures and clinical outcomes instruments that individual practitioners may perform on a regular basis with a minimum of equipment, time, and space. Both quantitative and qualitative varieties are explored, including surveys. Students also gain experience evaluating novel instruments not yet validated for use in O&P.

The second portion of the class is dedicated to applying biomechanical principles and clinical O&P concepts to gait studies of moderate- to high-tech approaches. Moderate-tech approaches include paper, markers, rulers, video cameras, and simple force plates. High-tech assessments include a fully-equipped gait lab that can quantify numerous aspects of gait, identify gait deviations, and determine dynamic forces applied to weight-bearing structures. Application of biomechanical principles (introduced in Biomechanics Fundamentals) to clinical practice is accomplished through presentation of clinical scenarios and corresponding biomechanical rationales for orthotic and/or prosthetic intervention.

Credit: 3 semester hours

Course Director: [Lorin Merkley \(https://www.bcm.edu/people/view/b1fe65fd-ffed-11e2-be68-080027880ca6\)](https://www.bcm.edu/people/view/b1fe65fd-ffed-11e2-be68-080027880ca6)

Anatomical Sciences (for O&P) (OPANA-63101)

The course Anatomical Sciences is designed to provide the student an extensive background in the fundamentals of human anatomy. The course is presented in lecture, small group laboratory, and independent study format. Anatomic structures are reviewed in lecture. The student will then be expected to locate, identify and explain the function and relationships of structures using cadavers, dissections, radiograph images, and static models. The course is structured to provide an anatomical basis for understanding the physical examination and structural changes associated with illness and injury of each major organ and body system.

Credit: 2 semester hours

Course Director: [David Rowley \(https://www.bcm.edu/people/view/b174b210-ffed-11e2-be68-080027880ca6/53f64f3f-a3d4-4102-8eaa-1e1e0a1612dc\)](https://www.bcm.edu/people/view/b174b210-ffed-11e2-be68-080027880ca6/53f64f3f-a3d4-4102-8eaa-1e1e0a1612dc)

Biomechanics Fundamentals (OPBMF-62101)

Biomechanics Fundamentals introduces the study and practice of evaluating and quantifying human movement through simple and complex means. Approaches to the study of biomechanics include static skeletal, muscular, and neurological considerations for human movement, dynamic force distribution, materials behavior, and lever arms. Skills pertaining to goniometric observations and linear and angular kinematic and kinetic calculations are also introduced.

Biomechanics Fundamentals is part one of a two-part course spanning two semesters. Biomechanics Fundamentals begins with an introduction to biomechanics as a discipline and explores application to human movements. Functional anatomy of the spinal column, upper limb, and lower limb are covered with considerations given to orthotic and prosthetic intervention. Application of biomechanical principles (such as linear and angular kinematics, and linear and angular kinetics) to clinical practice is accomplished through presentation of clinical scenarios and corresponding biomechanical rationales for orthotic and/or prosthetic intervention.

Credit: 2 semester hours

Course Director: [Lorin Merkley \(.../people/view/b1fe65fd-ffed-11e2-be68-080027880ca6\)](#)

Clinical Skills Development I (OPCDA-73101)

This course is designed to provide directed, pre-clinical training to students during the didactic year in order to ensure proper achievement of baseline clinical competencies prior to entering the clinical phase of their training. The course is a practical assessment course which includes a series of sequenced, graded clinical interactions designed to develop clinical skills related to: patient interaction and bed side manner, proper physical assessment, interviewing skills, formulation of a treatment plan, proper follow-up, ethical care, and adherence to sound social and business practices. Although graded assessments occur throughout the coursework, this course culminates in an Objective Skill Clinical Examination, or OSCE. The OSCE tests each of the basic competencies through a series of simulated clinical experiences. OSCE exams are video-recorded through simulation laboratories allowing students the opportunity to view their own interactions and learn from the experiences.

Credit: 3 semester hours

Course Director: [Jared Howell \(.../people/view/b18799ad-ffed-11e2-be68-080027880ca6\)](#)

Clinical Skills Development II (OPCDB-74202)

This course is designed to provide directed, pre-clinical training to students during the didactic year in order to ensure proper achievement of baseline clinical competencies prior to entering the clinical phase of their training. The course is a practical assessment course which includes a series of sequenced, graded, clinical interactions designed to develop clinical skills related to: patient interaction and bed side manner, proper physical assessment, interviewing skills, formulation of a treatment plan, proper follow-up, ethical care, and adherence to sound social and business practices. Although core clinical skills are fundamental, additional time is spent during Clinical Skills Development II focusing on the implementation of a given treatment plan. Although graded assessments occur throughout the coursework, this course culminates in two “high stakes” exams: An Objective Skill Clinical Examination, or OSCE, and a comprehensive Clinical Readiness Exam, or CRE.

The OSCE tests each of the basic competencies through a series of simulated clinical experiences. OSCE exams are video-recorded through simulation laboratories allowing students the opportunity to view their own interactions and learn from the experiences.

The CRE tests each of the basic competencies explored throughout the didactic curriculum through a series of written and oral exams and practical tasks. Participation in the clinical phase of education is predicated upon successful completion and passing of the CRE.

Credit: 4 semester hours

Course Director: [Jared Howell \(.../people/view/b18799ad-ffed-11e2-be68-080027880ca6\)](#)

Clinical Specialization I (OPCSA-76101)

These required specialization rotations are meant to provide comprehensive clinical experience with an emphasis on comprehensive clinical treatment. Patient interactions in this rotation include general prosthetic and orthotic practice, but students are encouraged to take advantage of opportunities for advanced patient care. Students during this rotation shall be working more independently and having more responsibility for patient care. Supervision and oversight is still necessary, but students shall be challenged and given opportunities that stretch their abilities and give them skills beyond those developed during the core rotations. Pre-graduate residents learn appropriate safety precautions and understand protocols related to patient contact and infection control. Although not required, students are encouraged to seek out international or local humanitarian opportunities as they present. Humanitarian experiences should be limited to no more than 4 weeks total without express written permission of residency supervisors, residency mentors, and the program director. Clinical Specialization I, II, and III, are designed to be contiguous in nature, although permission can be granted by the supervising faculty member to allow separate specializations during this period. The six month specialization period can be completed anywhere in the country provided each prospective site and residency mentors go through the necessary screening, approval, and training processes.

Credit: 6 semester hours

Course Director: [Jared Howell \(.../people/view/b18799ad-ffed-11e2-be68-080027880ca6\)](#)

Clinical Specialization II (OPCSB-76102)

These required specialization rotations are meant to provide comprehensive clinical experience with an emphasis on comprehensive clinical treatment. Patient interactions in this rotation include general prosthetic and orthotic practice, but students are encouraged to take advantage of opportunities for advanced patient care. Students during this rotation shall be working more independently and having more responsibility for patient care. Supervision and oversight is still necessary, but students shall be challenged and given opportunities that stretch their abilities and give them skills beyond those developed during the core rotations. Pre-graduate residents learn appropriate safety precautions and understand protocols related to patient contact and infection control. Although not required, students are encouraged to seek out international or local humanitarian opportunities as they present. Humanitarian experiences should be limited to no more than four weeks total without express written permission of residency supervisors, residency mentors, and the program director. Clinical Specialization I, II and III, are designed to be contiguous in nature, although permission can be granted by the supervising faculty member to allow separate specializations during this period. The six month specialization period can be completed anywhere in the country provided each prospective site and residency mentors go through the necessary screening, approval, and training processes.

Credit: 6 semester hours

Course Director: [Jared Howell \(.../people/view/b18799ad-ffed-11e2-be68-080027880ca6\)](#)

Contemporary Practice and Synthesis (OPCPS-62201)

This course is designed to introduce students to advanced concepts in prosthetics and orthotics and to provide a forum for discussing emerging technologies and the latest applicable research. While this course has some advanced concepts that are covered on a regular basis, much of the content is established as trends and technologies change.

Credit: 2 semester hours

Course Director: [Jared Howell \(.../people/view/b18799ad-ffed-11e2-be68-080027880ca6\)](#)

Cultural Competency (OPCC-61401)

The course introduces students to issues surrounding cultural awareness and sensitivity pertaining to the diversity and uniqueness of populations to be encountered as health care practitioners through lectures, discussions, small group activities, and participation in community events. Specifically, the course explores personal bias, communication styles, belief systems, alternative health care practices, family roles, and the relationship of these issues to perceptions of culture and socioeconomic status.

Credit: 1 semester hour

Course Director: [Carl Fasser \(.../people/view/b1679ed4-ffed-11e2-be68-080027880ca6\)](#)

Foundations of O&P (OPFOP-62101)

The Foundations of Orthotics and Prosthetics class is designed to provide an introduction to major themes covered during the didactic year of the program. Certain content from prerequisite courses such as anatomical terms, essential kinesiology concepts, normal human gait, and commonly applied statistical measures are reviewed to provide the framework for success in the didactic year. ABC Scopes of Practice, NCOPE educational program accreditation standards, and residency requirements are explained. Students learn lab safety, materials selection, and other topics essential to the learning and practice of O&P. Students are introduced to concepts that recur throughout the curriculum such as the disability mindset, evidence-based practices, the role of research in modern practice, psychosocial factors affecting care, and cultural awareness.

Credit: 2 semester hours

Course Director: [Lorin Merkley \(.../people/view/b1fe65fd-ffed-11e2-be68-080027880ca6\)](#)

Health Behavioral Counseling (AHHBC-62201)

This course introduces counseling and behavioral science theories, skills, and tools to enhance learners' communication skills and understanding of the process of health behavior change. Behavior change stages and processes are introduced using the Transtheoretical Model and social learning theories, with a focus on applying Motivational Interviewing skills. Learning activities include role play, observation of self-help support group sessions, simulated patient encounters, and critical reflection, to help learners develop an intimate understanding of the process of change and increase empathy for patients attempting to change health behaviors.

Credit: 2 semester hours

Course Director: [Robert McLaughlin \(.../people/view/b24687e5-ffed-11e2-be68-080027880ca6\)](#)

Course Offered: Fall 1, Terms 1, 2, 3

Health Research Methods (AHRM-62441)

This course will introduce the student to analytical methods used in clinical and community-based research, evidence-based practices used to evaluate potential treatment alternatives, and strategies underlying critical evaluation of current published literature. Lectures, practice exercises, and on-line activities will be used to involve the learner in the research process, proposal development, and the interpretation of research performed by others. Assignments are used to assist with the application and reinforcement of information presented during lecture and to promote constructive criticism and critical reflection.

Credit: 2 semester hours

Course Director: [David Johnson \(.../people/view/b26cbebf-ffed-11e2-be68-080027880ca6\)](#)

Course Offered: Spring 1, Term 2

Institutional and Acute Core (OPINT-76101)

This required core rotation is meant to provide comprehensive clinical experience with an emphasis on acute conditions and inpatient care. Patient interactions in this rotation may include prosthetics and orthotics. Pre-graduate residents work closely with institution based orthotists and prosthetists to develop the necessary techniques and skills for inpatient and outpatient clinical care. Pre-graduate residents in this rotation shall develop skills at assessing and diagnosing advanced pathologies related to the adult population. Emphasis in this core is placed on open communication and participation with the healthcare team. Pre-graduate residents learn appropriate safety precautions and understand protocols related to patient contact and infection control.

Credit: 6 semester hours

Course Director: [Jared Howell \(. /people/view/b18799ad-ffed-11e2-be68-080027880ca6\)](#)

Lower Limb Orthotic Management I (OPFAO-65201)

Lower Limb Orthotic Management I covers a comprehensive range of orthotic management of all aspects of the lower limb involving the knee joint and points proximal. Examples of devices covered include orthoses for the hip and knee. Also, this course integrates principles of bracing the lower limb below the knee as indicated. Bony and muscle anatomy, surface anatomy, muscle physiology, kinesiology, weight-bearing strategies, and biometrics relative to the knee and hip and gait are covered in depth, and reviewed as indicated for the distal portions of the leg. Pathologies and conditions commonly treated with orthoses of the hip and knee are explored, historical orthotic approaches are reviewed, and modern treatment philosophies are covered in depth. Students learn about, observe, and then perform essential aspects of lower limb orthotic care including patient assessment and communication, device design recommendation, measurement and casting, component and material selection, positive model optimization, device fabrication, device application and fitting principles, gait deviation detection and diagnosis, patient device training including shoe wear, device maintenance, and patient follow up.

Credit: 5 semester hours

Course Director: [Joshua Utay \(. /people/view/b27379b9-ffed-11e2-be68-080027880ca6\)](#)

Lower Limb Orthotic Management II (OPLLO-65201)

Lower Limb Orthotic Management covers a comprehensive range of orthotic management of all aspects of the lower limb involving the knee joint and points proximal. Examples of devices covered include orthoses for the hip and knee. Also, this course integrates principles of bracing the lower limb below the knee as indicated. Bony and muscle anatomy, surface anatomy, muscle physiology, kinesiology, weight-bearing strategies, and biometrics relative to the knee and hip and gait are covered in depth, and reviewed as indicated for the distal portions of the leg. Pathologies and conditions commonly treated with orthoses of the hip and knee are explored, historical orthotic approaches are reviewed, and modern treatment philosophies are covered in depth. Students learn about, observe, and then perform essential aspects of lower limb orthotic care including patient assessment and communication, device design recommendation, measurement and casting, component and material selection, positive model optimization, device fabrication, device application and fitting principles, gait deviation detection and diagnosis, patient device training including shoe wear, device maintenance, and patient follow up.

Credit: _____?

Course Director: [Ashley Mullen \(. /people/view/4f251426-3851-11e4-a42d-005056b104be\)](#)

Lower Limb Prosthetic Management I (OPLLA-68201)

Lower Limb Prosthetic Management 1 covers a comprehensive range of prosthetic management of amputation levels of the lower limb through the tibia and points distal. Bony and muscle anatomy, surface anatomy, surgical amputation techniques, muscle physiology, kinesiology, and biometrics

relative to the lower limb are covered in depth. Pathologies and conditions resulting in lower limb amputation are explored, historical prosthetic devices, components, and approaches to transtibial prosthetics practice are reviewed and modern transtibial prosthetic philosophies and components are covered in depth. Students learn about, observe, and then perform essential aspects of transtibial and distal lower limb prosthetic care including patient assessment and communication, K-Level evaluation and designation, device design recommendation, measurement and casting, component and material selection, positive model optimization, device fabrication, prosthetic alignment and transfer, device application and fitting principles, gait deviation detection, patient device training, gait considerations, device maintenance, volume management, and patient follow up.

Lower Limb Prosthetic Management I also covers prosthetic feet of all kinds, partial foot management, and bilateral amputee management.

Credit: 8 semester hours

Course Director: [Lorin Merkley \(/people/view/b1fe65fd-ffed-11e2-be68-080027880ca6\)](#)

Lower Limb Prosthetic Management II (OPLLB-65202)

Lower Limb Prosthetic Management II covers a comprehensive range of prosthetic management of amputation levels of the lower limb at the knee and points proximal. Bony and muscle anatomy, surface anatomy, surgical amputation techniques, muscle physiology, kinesiology, and biometrics relative to the lower limb are reviewed as applicable. Pathologies and conditions resulting in lower limb amputation are reviewed, historical prosthetic knees and other components and approaches to transfemoral prosthetics practice are reviewed and modern transfemoral prosthetic philosophies and components are covered in depth. Students learn about, observe, and then perform essential aspects of knee-disarticulation and proximal lower limb prosthetic care including patient assessment and communication, K-Level designation, device design recommendation, measurement and casting, component and material selection, positive model optimization, device fabrication, prosthetic alignment and transfer, device application and fitting principles, gait deviation detection, patient device training, gait considerations, device maintenance, volume management, and patient follow up.

Lower Limb Prosthetic Management II also covers knee and hip units, including microprocessor controlled devices and bilateral / multiple amputee management.

Credit: 5 semester hours

Course Director: [Jared Howell \(/people/view/b18799ad-ffed-11e2-be68-080027880ca6\)](#)

Materials Science and Selection in O&P (OPMSS-61101)

Materials Science and Selection for O&P explores the materials used in the construction of orthotic and prosthetic devices, both custom and prefabricated, and strategies of selecting from among them for specific clinical uses. Classifications and properties of metals, plastics, foams, leather, and other materials are introduced and linked directly to specific application in devices and components in O&P. Choices for material properties are compared and contrasted. Numerous clinical and technical applications are exemplified throughout the course.

Credit: 2 semester hours

Course Director: [Michael Van Wie \(/people/view/4f284542-3851-11e4-a42d-005056b104be\)](#)

Medical Ethics (OPETH-62421)

The course introduces students from multiple disciplines to the basic concepts and language of medical ethics, presents relevant topics in medical ethics, and models the skills requisite to the application of medical ethics to clinical cases using small group sessions and clinical ethics rounds. The interdisciplinary nature of the course ensures that the breadth and depth of problems in the clinical arena are addressed.

Credit: 2 semester hours

Course Director: [Jennifer Blumenthal Barby \(.../people/view/b18fdd06-ffed-11e2-be68-080027880ca6\)](#)

Course Offered: Spring 1, Term 2

O&P Research I (OPORA-61201)

O&P Research I contains a detailed explanation of the requirements and expectations for the research project and related master's paper requirement. Students begin working with their faculty and research mentors on identifying areas of interest, determining the state of the science in the chosen area(s), and what new areas of research may advance understanding of orthotic and/or prosthetic care. By the end of the course, students declare a topic for their research project and submit a plan to match available resources with research objectives by required deadlines. This narrative also includes a written statement of the literature search strategy to include the key words to be used, and the numerical products of the actual search.

Credit: 1 semester hour

Course Director: [Ashley Mullen \(.../people/view/4f251426-3851-11e4-a42d-005056b104be\)](#)

O&P Research II (OPORB-72102)

O&P Research II is designed to provide the resources and occasion for students to further progress on their research projects. After the introductory, full-class lecture, students are expected to work with their research advisors to independently organize research planning, data collection, data analysis, and manuscript preparations. The class is assembled at the mid-point of the semester for progress checks and group discussions about research topics and projects. Critiques by fellow students and Instructors / mentors are performed, resulting in direct feedback for each project. Students are to gather one more time at the end of the semester to submit the required elements of the project and for class presentation of project progress to current and adjacent class cohorts.

Credit: 2 semester hours

Course Director: [Jared Howell \(.../people/view/b18799ad-ffed-11e2-be68-080027880ca6\)](#)

O&P Research III (OPORC-72203)

O&P Research III Begins with review of statistical calculations relevant to the research projects in a classroom setting. Midway through students present progress on their projects and preliminary results. Critiques and suggestions are offered on statistical analyses and results sections by students and faculty. Students individually gather remaining data, compute results, and construct remaining sections with mentors. Students are to gather one more time at the end of the semester to submit the required elements of the project and for class presentation of project progress to current and adjacent class cohorts.

Credit: 2 semester hours

Course Director: [Jared Howell \(.../people/view/b18799ad-ffed-11e2-be68-080027880ca6\)](#)

O&P Research IV (OPORD-72101)

O&P Research IV begins in a classroom setting with instruction detailing the master's papers in conjunction with the research project presentations. This class then meets periodically when students present their work to each other and faculty for critique. Upon approval by their Research Advisor, students prepare posters of their projects to display at the annual Allied Health Research Day in November attended by numerous members of multiple health care professions from around the region. Final master's papers are due by the end of the semester.

Credit: 2 semester hours

Course Director: [Jared Howell \(.../people/view/b18799ad-ffed-11e2-be68-080027880ca6\)](#)

Orthotics Core (OPOCO-76201)

This required core rotation is meant to provide comprehensive clinical experience with an emphasis on orthotic patient management. Patient interactions in this rotation are dedicated to orthotics. Pre-graduate residents work closely with community based orthotists to develop the necessary techniques and skills for comprehensive orthotic care. Pre-graduate residents in this rotation shall develop assessment and evaluation skills necessary recognize advanced pathologies and formulate appropriate orthotic interventions. Pre-graduate residents undergo the process from prescription to training and practice implementing the appropriate steps in that process. Proper handling of follow-up, maintenance and repairs is covered in detail. Pre-graduate residents are encouraged to openly communicate and participate with the healthcare team. Pre-graduate residents learn appropriate safety precautions and understand protocols related to patient contact, laboratory work, and infection control. Pre-graduate residents are required to complete appropriate documentation for all qualifying experiences.

Credit: 6 semester hours

Course Director: [Jared Howell \(.../people/view/b18799ad-ffed-11e2-be68-080027880ca6\)](#)

Pediatric Core (OPPED-76101)

This required core rotation is meant to provide comprehensive clinical experience in the field of pediatrics. Patient interactions in this rotation may include prosthetics and orthotics. Pre-graduate residents work closely with pediatric orthotists and prosthetists to develop the necessary techniques and skills for pediatric care. This includes pediatric pathology, proper communication, parent communication, therapist involvement. Pre-graduate residents learn appropriate precautions inherent in pediatric care, and understand protocols related to safety of pediatric patients. Students are exposed to a variety of pathologies and challenges often not seen in the adult population.

Credit: 6 semester hours

Course Director: [Jared Howell \(.../people/view/b18799ad-ffed-11e2-be68-080027880ca6\)](#)

Pedorthic Management (OPPED-63103)

Pedorthic Management covers orthotic management of the foot and ankle. Devices covered will be those distal to the malleoli. Examples of devices include therapeutic shoes, accommodative foot orthoses, functional foot orthoses, and subtalar control foot orthoses. The course provides an overview of custom footwear, as well as shoe modifications. Bony, muscle, and neurological anatomy will be covered, along with pathology of the foot and ankle. Although historical treatment options will be reviewed, the focus of the course will be modern clinical applications. Foot and lower limb pathologies, kinesiology, gait analysis, and orthotic treatment will be explored. Students will learn about, observe, and the perform essential aspects of pedorthic management to include patient evaluation and initial assessment, impression taking, device design, positive model modification, material selection, device fitting, device modification, and patient outcome assessment.

Credit: 3 semester hours

Course Director: [Ashley Mullen \(.../people/view/4f251426-3851-11e4-a42d-005056b104be\)](#)

Physical Examination I (OPPEA-64101)

Physical Examination I introduces the study and scope of diagnosis and characterization of diseases of the human body commonly leading to orthotic and/or prosthetic care. Physical Diagnosis I has emphasis on musculoskeletal, neurological, congenital, and developmental conditions. Radiographic diagnostic criteria and pharmacological treatments for common particular diseases are covered. Where feasible, pathological conditions primarily affecting the head, spinal column, and upper limbs are covered concurrently in their dedicated module.

Credit: 6 semester hours

Course Director: [Joshua Utay \(.../.../.../people/view/b27379b9-ffed-11e2-be68-080027880ca6\)](#)

Technical Skills Development Core (OPTSD-71101)

This required core rotation is design to give students a grasp on the technical aspects of clinical care. Students in this rotation shall develop best practices for the laboratory, including laboratory safety, and proper fabrication techniques to ensure patient safety. Efforts should also be made to understand material and component cost, and environmental impact. In this rotation, students further develop their technical abilities by spending the bulk of their day in the laboratory. Students are encouraged to work closely with a lab mentor who provides hands on technical training. During this section students are encouraged to work through a patient interaction from start to finish, including the taking of the impression and carrying the project all the way through fabrication and fitting of the device. This rotation shall include equal exposure to prosthetic and orthotic concepts, and modification of prosthetic and orthotic molds. To the extent possible, alternative fabrication models and processes can be explored. These may include CAD/CAM and other plaster free fabrication techniques.

Credit: 1 semester hour

Course Director: [Jared Howell \(.../.../.../people/view/b18799ad-ffed-11e2-be68-080027880ca6\)](#)

Upper Limb Orthotic Management (OPULO-65101)

Upper Limb Orthotic Management covers a comprehensive range of orthotic management of all aspects of the upper limb. Examples of devices include orthoses for the shoulder, elbow, forearm, wrist, hand, thumb, and fingers. Bony and muscle anatomy, surface anatomy, muscle physiology, kinesiology, and biometrics relative to the upper limb orthotic practice are covered in depth. Pathologies and conditions commonly treated with upper limb orthoses are explored, historical orthotic approaches are reviewed, and modern treatment philosophies are covered in depth. Students learn about, observe, and then perform essential aspects of upper limb orthotic care including patient assessment and communication, device design recommendation, measurement and casting, component and material selection, positive model optimization, device fabrication, device application and fitting principles, patient device training, device maintenance, and patient follow up.

Upper Limb Orthotic Management is divided into two units. The first focuses on orthotic management the hand, wrist, and forearm up to the elbow. The second unit details orthotic management of the elbow and shoulder complex.

Credit: 5 semester hours

Course Director: [Joshua Utay \(.../.../.../people/view/b27379b9-ffed-11e2-be68-080027880ca6\)](#)

Upper Limb Prosthetic Management (OPULP-69101)

Upper Limb Prosthetic Management covers a comprehensive range of prosthetic management of all amputation levels of the upper limb. Bony and muscle anatomy, surface anatomy, surgical amputation techniques, muscle physiology, kinesiology, and biometrics relative to the upper limb are covered in depth. Pathologies and conditions resulting in upper limb amputation are explored, historical prosthetic devices and approaches are reviewed, and modern prosthetic philosophies and components are covered in depth. Students learn about, observe, and then perform essential aspects of upper limb prosthetic care including patient assessment and communication, device design recommendation, terminal device categorization and selection, measurement and casting, component and material selection, positive model optimization, device fabrication, prosthetic alignment and transfer, device application and fitting principles, patient device training, device maintenance, and patient follow up.

Upper Limb Prosthetic Management is divided into two units. The first focuses on prostheses for amputation levels below the elbow, including transradial, wrist-disarticulation, partial hand, and finger levels. The second unit covers prostheses for amputation levels at and above the elbow, including elbow disarticulation, transmeral, shoulder disarticulation, and scapula-thoracic levels.

Credit: 9 semester hours

Course Director: [Lorin Merkley \(.../.../.../people/view/b1fe65fd-ffed-11e2-be68-080027880ca6\)](http://people.view/b1fe65fd-ffed-11e2-be68-080027880ca6)

Master of Science in Orthotics and Prosthetics Program

One Baylor Plaza, MS: BCM115
Houston, TX 77030
Phone: (713) 798-3098
Fax: (713) 798-7694

Student Handbook



Download the 2013-2014 Student Handbook for MSOP.

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