Course Name: Anatomical Sciences

Course Number: OPANA 63101  Semester Taken: Fall 2  Credit Hours: 3

Course Director: Frank Kretzer, Ph.D.

Textbook Information: Textbook Required. Please see specific information below.

Title: Clinically Oriented Anatomy
Author: Moore K, Dalley A, Agur A
Edition: 6th
ISBN or Web Address: 978-1608311811 (Hardcover); 978-0781775250 (Paperback)

Title: Atlas of Anatomy
Author: Gilroy A, Schuenke M, MacPherson B, & Ross L
Edition: 1st
ISBN or Web Address: 978-1604060621

Course Description:

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, prosections, 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.
Course Name: Cultural Competency

Course Number: AHCC 62401    Semester Taken: Fall 1    Credit Hours: 2

Course Director: Carl Fasser, PA

Textbook Information: All required reading by students will be distributed to students in class.

Course Description:

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.
Course Name: Health Behavioral Counseling

Course Number: AHHBC 63201  Semester Taken: Fall 1, Fall 2, Fall 3  Credit Hours: 3

Course Director: Robert McLaughlin, Ph.D.

Textbook Information: Textbook Required. Please see specific information below.

Title: Revised global scales: Motivational Interviewing Treatment Integrity 3.0 (MITI 3.0)
Author: Moyers TB, Martin T, Manuel JK, et al.
Edition: 2007

Title: National Cancer Institute. Theory at a glance: A guide for health promotion practice.
Author: U.S. Department of Health and Human Services, National Institutes of Health
Edition: 2005
ISBN or Web Address: Free copy can be ordered at (www.cancer.gov); also available as an online Monograph: http://www.cancer.gov/cancertopics/cancerlibrary/theory.pdf

Title: Motivational Interviewing in Health Care: Helping Patients Change Behavior
Author: Rollnick SR, Miller WR, Butler CC
Edition: 2008
ISBN or Web Address: 978-1593856120

Course Description:

This course will explore the theory and practice of counseling for health behavior change with a focus on application of Motivational Interviewing skills to cancer-related and other health-risk behaviors. The stages of behavior change will be introduced using the framework of the Transtheoretical Model along with social learning theory. Elements of the therapeutic alliance and the principles of harm reduction will be introduced along with socializing the patient to motivational health behavior change counseling. Modeling through role play will be used to develop and refine the student’s ability to identify risk, assess readiness for change, and offer messages designed to strengthen the patient’s commitment to change. Observations of self-help and patient support group sessions will be used to further socialize students to the degree to which individuals are committed to change. Students will be prepared to incorporate the identification of risk and assessment of readiness to change into written reports of workups of patients in conjunction with the Physical Diagnosis course. These experiences shall help the student develop an intimate understanding of the process of change and thereby increase empathy for patients attempting to improve their own health behaviors and adhere to challenging treatment regimens.
Course Name: Biomechanics Fundamentals

Course Number: OPBMF 62101  Semester Taken: Fall 1, Fall 2  Credit Hours: 2

Course Director: Lorin C. Merkley, CP

Textbook Information: Textbook Required. Please see specific information below.

Title: Anatomy, Mechanics and Human Motion
Author: Hay J, Reid JG
Edition: 2nd
ISBN or Web Address: 0-13-035213-6

Course Description:

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.
Course Name: Material Science and Selection

Course Number: OPMSS 62102  Semester Taken: Fall 2, Fall 3  Credit Hours: 2

Course Director: Michael J. Van Wie, Ph.D., P.E.

Textbook Information: Textbook Required. Please see specific information below.

Title: Fundamentals of Materials Science and Engineering: An Integrated Approach
Author: Callister WD, Rethwisch DG
Edition: 4th
ISBN or Web Address: 978-1118061602

Title: Strength of Materials in Orthotic and Prosthetic Design
Author: Lunsford, TR
Edition: 1st
ISBN or Web Address: 0-7872-1913-4; Out of print, limited availability

Course Description:

Materials Science and Selection for O&P explores the materials used in the construction of orthotic and prosthetic devices, both custom and pre-fabricated, 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.
**Course Name:** Foundations of O&P

**Course Number:** OPFOP 62101  **Semester Taken:** Fall 1  **Credit Hours:** 2

**Course Director:** Lorin C. Merkley, CP

**Textbook Information:** All required reading by students will be distributed to students in class.

**Course Description:**

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 pre-requisite courses such as anatomical terms, essential kinesiology concepts, and normal human gait 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.
Course Name: Physical Examination I

Course Number: OPPEA 64101  Semester Taken: Fall 1, Fall 2, Fall 3  Credit Hours: 4

Course Director: Joshua B. Utay, CPO, M.Ed.

Textbook Information: Textbook Required. Please see specific information below.

Title: Bates' Guide to Physical Examination and History Taking
Author: Bickley, LS
Edition: 11th
ISBN or Web Address: 978-1609137625

Title: Measurement of Joint Motion: A Guide to Goniometry
Author: Norkin C, White J
Edition: 4th
ISBN or Web Address: 978-0803620667

Title: Daniels and Worthingham's Muscle Testing: Techniques of Manual Examination and Performance Testing
Author: Hislop H, Avers D, Brown M
Edition: 9th
ISBN or Web Address: 978-1455706150

Course Description:

Physical Examination I introduces the study and scope of physical patient examinations, diagnostic procedures, and characterization of diseases of the human body commonly leading to orthotic and/or prosthetic care. Physical Examination I has emphasis on musculoskeletal, neurological, congenital, and developmental conditions, especially as related to the spine and upper limb, but not limited to those areas. Radiographic diagnostic criteria and pharmacological treatments for common conditions are covered. Where feasible, pathological conditions primarily affecting the head, spinal column, and upper limbs are covered concurrently with their corresponding core O&P course.
Course Name: Spinal & Cranial Orthotic Management

Course Number: OPSCO 66101  Semester Taken: Fall 1, Fall 2  Credit Hours: 6

Course Director: Joshua B. Utay, CPO, M.Ed.

Textbook Information: Textbook Required. Please see specific information below.

Title: AAOS Atlas of Orthoses and Assistive Devices
Author: Hsu JD, Michael J, Fisk J
Edition: 4th
ISBN or Web Address: 978-0323039314

Title: Orthotics and Prosthetics in Rehabilitation
Author: Lusardi MM, Nielsen CC
Edition: 2nd
ISBN or Web Address: 978-0750674799

Course Description:
Spinal & Cranial Orthotic Management covers a comprehensive range of orthotic management of the head and all spinal levels. Examples of devices include orthoses for the cervical, thoracic, lumbar, and sacral levels, alone and in combinations, cranial molding helmets, and face masks. Bony and muscle anatomy, surface anatomy, muscle physiology, kinesiology, and biometrics relative to the spine and head are covered in depth. Pathologies and conditions commonly treated with spinal 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 spinal and cranial 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. Importance of proper patient compliance is highlighted.
Course Name: Upper Limb Orthotic Management

Course Number: OPULO 65101  Semester Taken: Fall 2, Fall 3  Credit Hours: 5

Course Director: Joshua B. Utay, CPO, M.Ed.

Textbook Information: Textbook Required. Please see specific information below.

Title: Atlas of Amputations and Limb Deficiencies
Author: Smith, DG, Michael, JW, Bowker, JH
Edition: 2004
ISBN or Web Address: 978-0892033133

Title: Orthotics and Prosthetics in Rehabilitation
Author: Lusardi MM, Nielsen CC
Edition: 2nd
ISBN or Web Address: 978-0750674799

Course Description:

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.
Course Name: Upper Limb Prosthetic Management

Course Number: OPULP 68101   Semester Taken: Fall 2   Credit Hours: 8

Course Director: Lorin C. Merkley, CP

Textbook Information: Textbook Required. Please see specific information below.

Title: Atlas of Amputations and Limb Deficiencies
Author: Smith DG, Michael JW, Bowker JH
Edition: 2004
ISBN or Web Address: 978-0892033133

Title: Orthotics and Prosthetics in Rehabilitation
Author: Lusardi MM, Nielsen CC
Edition: 2nd
ISBN or Web Address: 978-0750674799

Course Description:

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, transumeral, shoulder disarticulation, and scapula-thoracic levels.
Course Name: Principles of Professional Practice

Course Number: OPPPP 62101  Semester Taken: Fall 3  Credit Hours: 2

Course Director: Jared A. Howell, M.S., CPO

Textbook Information: All required reading by students will be distributed to students in class.

Course Description:

This course is designed to help students understand and apply proper documentation and administrative principles related to prosthetic and orthotic care. It introduces students to professional issues related to contemporary clinical practice, and exposes them to proper terminology for use in the medical and healthcare field. Practice and business management topics and resources are also addressed in this course.
Course Name: Clinical Skills Development I

Course Number: OPCDA 73101   Semester Taken: Fall 1, Fall 2, Fall 3   Credit Hours: 3

Course Director: Jared A. Howell, M.S., CPO

Textbook Information: Textbook Required. Please see specific information below.

Title: How to Read a Paper: The Basics of Evidence-Based Medicine

Author: Greenhalgh T

Edition: 5th

ISBN or Web Address: 978-1118800966

Course Description:

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 bedside manner, proper physical assessment, interviewing skills, formulation of a treatment plan, proper follow-up, ethical care, and adherence to sound social and business practices. This course is designed to follow the format LEARN, SEE, DO, TEACH with students learning in the classroom, shadowing actual patient encounters, performing targeted assignments, and then reflecting on those experiences. 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.
Course Name: Pedorthic Management

Course Number: OPPED 62103  Semester Taken: Fall 3  Credit Hours: 2

Course Director: Ashley Mullen, M.S., CO

Textbook Information: Textbook Required. Please see specific information below.

Title: Contemporary Pedorthics
Author: Decker W, Albert S
Edition:
ISBN or Web Address: Only available at this web address: https://pedorthics.site-ym.com/store/ViewProduct.aspx?id=731439&hhSearchTerms=%2522contemporary+and+pedorthic%2522

Course Description:

Foot and Ankle Orthotic Management (also referred to as Lower Limb Orthotics 1) covers a comprehensive range of orthotic management of all aspects of the foot and lower limb below the knee. Examples of devices include orthoses for the ankle, foot, and various permutations thereof. Bony and muscle anatomy, surface anatomy, muscle physiology, kinesiology, weight-bearing strategies, and biometrics relative to the foot and ankle and gait are covered in depth. Pathologies and conditions commonly treated with footwear and orthoses of the feet and/or ankles 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 foot and ankle 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.
Course Name: Health Research Methods

Course Number: AHHRM 63441   Semester Taken: Spring 2   Credit Hours: 3

Course Director: T. David Johnson, Ph.D.

Textbook Information: Textbook Required. Please see specific information below.

Title: The Practice of Nursing Research: Appraisal, Synthesis, and Generation of Evidence

Author: Burns N, Grove S

Edition: 6th

ISBN or Web Address: 978-1416054689

Course Description:

This course introduces the participant to research methods used in clinical and community based research, evidence-based practices used to evaluate potential treatment alternatives, and critical evaluation of current published literature. The course uses lectures, practice exercises, on-line activities to involve the learner in research process and proposal development in the interpretation of research performed by others. Assignments assist in learner application and reinforcement of information presented during lecture and the text and articulate knowledge gained promoting constructive criticism and critical reflection.
**Course Name:** Medical Ethics

**Course Number:** AHETH 62421  **Semester Taken:** Spring 2  **Credit Hours:** 2

**Course Director:** J.S. Blumenthal-Barby, PhD

**Textbook Information:** All required reading by students will be distributed to students in class.

**Course Description:**

The course has three components: (1) lectures, (2) small group sessions, and (3) clinical ethics rounds.
Course Name: Advanced Biomechanics and Clinical Outcomes

Course Number: OPABM 63201  Semester Taken: Spring 1, Spring 2  Credit Hours: 3

Course Director: Jared A. Howell, M.S., CPO

Textbook Information: Textbook Required. Please see specific information below.

Title: Biomechanical Basis of Human Movement
Author: Hamill J, Knutzen KM
Edition: 3rd
ISBN or Web Address: 978-0781791281

Title: Gait Analysis: Normal and Pathological Function
Author: Perry
Edition: 2nd
ISBN or Web Address: ASIN B00E282T6O

Course Description:

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.
Course Name: Physical Examination II

Course Number: OPPEB 63202  Semester Taken: Spring 1, Spring 2, Spring 3

Credit Hours: 3

Course Director: Joshua B. Utay, CPO, M.Ed.

Textbook Information: Textbook Required. Please see specific information below.

Title: Bates’ Guide to Physical Examination and History Taking
Author: Bickley, LS
Edition: 11th
ISBN or Web Address: 978-1609137625

Title: Measurement of Joint Motion: A Guide to Goniometry
Author: Norkin and White
Edition: 4th
ISBN or Web Address: 978-0803620667

Title: Daniels and Worthingham's Muscle Testing: Techniques of Manual Examination and Performance Testing
Author: Hislop H, Avers D, Brown M
Edition: 9th
ISBN or Web Address: 978-1455706150

Course Description:

Physical Examination II continues the study of the scope of diagnosis and characterization of diseases of the human body commonly leading to orthotic and/or prosthetic care. Physical Examination II 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 lower limbs are covered concurrently in their dedicated module.
Course Name: Lower Limb Orthotic Management I

Course Number: OPFAO 65201  Semester Taken: Spring 1  Credit Hours:

Course Director: Joshua B. Utay, CPO, M.Ed.

Textbook Information: Textbook Required. Please see specific information below.

Title: AAOS Atlas of Orthoses and Assistive Devices
Author: Hsu JD, Michael J, Fisk J
Edition: 4th
ISBN or Web Address: 978-0323039314

Title: Orthotics and Prosthetics in Rehabilitation
Author: Lusardi, MM, Nielsen, CC.
Edition: 2nd
ISBN or Web Address: 978-0750674799

Course Description:

Foot and Ankle Orthotic Management (also referred to as Lower Limb Orthotics 1) covers a comprehensive range of orthotic management of all aspects of the foot and lower limb below the knee. Examples of devices include orthoses for the ankle, foot, and various permutations thereof. Bony and muscle anatomy, surface anatomy, muscle physiology, kinesiology, weight-bearing strategies, and biometrics relative to the foot and ankle and gait are covered in depth. Pathologies and conditions commonly treated with footwear and orthoses of the feet and/or ankles 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 foot and ankle 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.
Course Name: Lower Limb Orthotic Management II

Course Number: OPLLO 66201    Semester Taken: Spring 1, Spring 2    Credit Hours: 5

Course Director: Ashley Mullen, M.S., CO

Textbook Information: Textbook Required. Please see specific information below.

Title: AAOS Atlas of Orthoses and Assistive Devices
Author: Hsu JD, Michael J, Fisk J
Edition: 4th
ISBN or Web Address: 978-0323039314

Title: Orthotics and Prosthetics in Rehabilitation
Author: Lusardi, MM, Nielsen, CC.
Edition: 2nd
ISBN or Web Address: 978-0750674799

Course Description:

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.
Course Name: Lower Limb Prosthetic Management I

Course Number: OPLLA 67201  Semester Taken: Spring 2, Spring 3  Credit Hours: 7

Course Director: Lorin C. Merkley, CP

Textbook Information: Textbook Required. Please see specific information below.

Title: Atlas of Amputations and Limb Deficiencies
Author: Smith DG, Michael JW, Bowker JH
Edition: 2004
ISBN or Web Address: 978-0892033133

Title: Orthotics and Prosthetics in Rehabilitation
Author: Lusardi, MM, Nielsen, CC.
Edition: 2nd
ISBN or Web Address: 978-0750674799

Course Description:

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 1 also covers prosthetic feet of all kinds, partial foot management, and bilateral amputee management.
Course Name: Lower Limb Prosthetic Management II

Course Number: OPLL 65202  Semester Taken: Spring 3  Credit Hours: 5

Course Director: Jared A. Howell, M.S., CPO

Textbook Information: Textbook Required. Please see specific information below.

Title: Atlas of Amputations and Limb Deficiencies
Author: Smith DG, Michael JW, Bowker JH
Edition: 2004
ISBN or Web Address: 978-0892033133

Title: Orthotics and Prosthetics in Rehabilitation
Author: Lusardi, MM, Nielsen, CC.
Edition: 2nd
ISBN or Web Address: 978-0750674799

Course Description:

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.
**Course Name:** Contemporary Practice and Synthesis

**Course Number:** OPCPS 62201  
**Semester Taken:** Spring 3  
**Credit Hours:** 2

**Course Director:** Jared A. Howell, M.S., CPO

**Textbook Information:** All required reading by students will be distributed to students in class.

**Course Description:**

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.
**Course Name:** Clinical Skills Development II

**Course Number:** OPCDB 74202  
**Semester Taken:** Spring 1, Spring 2, Spring 3

**Credit Hours:** 4

**Course Director:** Jared A. Howell, M.S., CPO

**Textbook Information:** All required reading by students will be distributed to students in class.

**Course Description:**

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 bedside 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. These exams must be passed with a 76% or higher in order to advance into the clinical portion of the program. The CRE will not be a considered part of the CSD 2 grades. 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.
**Course Name:** O&P Research I

**Course Number:** OPORA 61201  **Semester Taken:** Spring 3  **Credit Hours:** 1

**Course Director:** Jared A. Howell, M.S., CPO; Ashley Mullen, M.S., CO

**Textbook Information:** No new texts are required for class. Students may be directed to texts required for other classes as reference materials in this class. Individual students may need access to additional texts and articles as warranted by the research project and/or ass

**Course Description:**

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.
Course Name: O&P Research II

Course Number: OPORB 72102  Semester Taken: Fall 1, Fall 2, Fall 3  Credit Hours: 2

Course Director: Jared A. Howell, M.S., CPO; Ashley Mullen, M.S., CO

Textbook Information: No new texts are required for class. Students may be directed to texts required for other classes as reference materials in this class. Individual students may need access to additional texts and articles as warranted by the research project and/or ass

Course Description:

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.
Course Name: Pediatric Core

Course Number: OPPED 76101  Semester Taken: Varies, Fall 2, Fall 3, Spring 2, Spring 3  Credit Hours: 6

Course Director: Jared A. Howell, M.S., CPO; Joshua B. Utay, CPO, M.Ed.

Textbook Information: No new texts are required for class. Students may be directed to texts required for other classes as reference materials in this class. Individual students may need access to additional texts and articles as warranted by the research project and/or ass

Course Description:

This required core rotation is meant to provide comprehensive clinical experience in the field of pediatric orthotic and prosthetic practice. Patient interactions in this rotation 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 patient communication, parent communication, and 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 not frequently seen in adult populations.
Course Name: Institutional & Acute Core

Course Number: OPINT 76101  Semester Taken: Varies, Fall 2, Fall 3, Spring 2, Spring 3

Credit Hours: 6

Course Director: Jared A. Howell, M.S., CPO; Joshua B. Utay, CPO, M.Ed.

Textbook Information: No new texts are required for class. Students may be directed to texts required for other classes as reference materials in this class. Individual students may need access to additional texts and articles as warranted by the research project and/or ass

Course Description:

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 shall 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 assessing and diagnosing advanced pathologies related to adult populations. 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.
Course Name: O&P Research III

Course Number: OPORC 72203  Semester Taken: Spring 1, Spring 2, Spring 3

Credit Hours: 2

Course Director: Jared A. Howell, M.S., CPO; Ashley Mullen, M.S., CO

Textbook Information: No new texts are required for class. Students may be directed to texts required for other classes as reference materials in this class. Individual students may need access to additional texts and articles as warranted by the research project and/or ass

Course Description:

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.
Course Name: Prosthetics Core

Course Number: OPPCP 76201  Semester Taken: Varies, Fall 2, Fall 3, Spring 2, Spring 3

Credit Hours: 6

Course Director: Jared A. Howell, M.S., CPO; Joshua B. Utay, CPO, M.Ed.

Textbook Information: No new texts are required for class. Students may be directed to texts required for other classes as reference materials in this class. Individual students may need access to additional texts and articles as warranted by the research project and/or ass

Course Description:

This required core rotation is meant to provide comprehensive clinical experience with an emphasis on prosthetic patient management. Patient interactions in this rotation are dedicated to prosthetics. Pre-graduate residents shall work closely with community-based prosthetists to develop the necessary techniques and skills for comprehensive prosthetic care. Pre-graduate residents in this rotation shall develop assessment and evaluation skills necessary to formulate appropriate prosthetic interventions. Pre-graduate residents undergo the process from prescription to training and practice implementing the appropriate component 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 every member of 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.
Course Name: Orthotics Core

Course Number: OPOCO 76201  Semester Taken: Varies, Fall 2, Fall 3, Spring 2, Spring 3

Credit Hours: 6

Course Director: Jared A. Howell, M.S., CPO; Joshua B. Utay, CPO, M.Ed.

Textbook Information: No new texts are required for class. Students may be directed to texts required for other classes as reference materials in this class. Individual students may need access to additional texts and articles as warranted by the research project and/or ass

Course Description:

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.
Course Name: Technical Skills Development Core

Course Number: OPTSD 71101  Semester Taken: Spring 3  Credit Hours: 1

Course Director: Jared A. Howell, M.S., CPO; Joshua B. Utay, CPO, M.Ed.

Textbook Information: No new texts are required for class. Students may be directed to texts required for other classes as reference materials in this class. Individual students may need access to additional texts and articles as warranted by the research project and/or ass

Course Description:

Technical and fabrication capabilities are what separate orthotists and prosthetists from any other healthcare profession. The ability to make and maintain physical devices is a highly-valued priority in this program as with many other programs. Technical skills are explored and obtained at every rotation a student experiences, though the first rotation will inherently host the greatest volume of new experiences by virtue of its being first. Each clinical rotation begins with a technical skills training period to ensure residents new to the facility are familiar with both fabrication principles in general and those principles dominant in the particular facility’s repertoire. This training may be brief or extended, depending upon each student’s aptitude and each facility’s technical culture. As such, there is no isolated technical training other than what each rotation offers every student. Instead, students are responsible for the complete series of technical competencies (as determined by NCOPE) by the end of all four clinical residency core rotations. The exam for these competencies will take place at the close of the fourth rotation. Like clinical competencies, any lacking technical competencies must be remediated during the final 6-month, clinical-specialization period before proceeding to chosen selectives or being allowed to graduate.

During targeted technical training, students 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. Students further develop their technical abilities by spending time in the laboratory. Students are encouraged to work closely with a lab mentor who provides hands-on, technical training. 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. In total, equal exposure to prosthetic and orthotic concepts is scheduled as well as fabrication of prosthetic and orthotic devices. As possible, alternative fabrication models and processes can be explored. These may include CAD/CAM and other plaster-free fabrication techniques.
Course Name: O&P Research IV

Course Number: OPORD 72101  Semester Taken: Spring 3  Credit Hours: 2

Course Director: Jared A. Howell, M.S., CPO; Ashley Mullen, M.S., CO

Textbook Information: No new texts are required for class. Students may be directed to texts required for other classes as reference materials in this class. Individual students may need access to additional texts and articles as warranted by the research project and/or ass

Course Description:

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.
Course Name: Clinical Specialization I

Course Number: OPCS 76101  Semester Taken: Fall 1, Fall 2  Credit Hours: 6

Course Director: Jared A. Howell, M.S., CPO; Joshua B. Utay, CPO, M.Ed.

Textbook Information: No new texts are required for class. Students may be directed to texts required for other classes as reference materials in this class. Individual students may need access to additional texts and articles as warranted by the research project and/or ass

Course Description:

These required specialization rotations are meant to provide comprehensive clinical experience with an emphasis on comprehensive clinical treatment. While patient interactions in this rotation include general prosthetic and orthotic practice, students are encouraged to take advantage of opportunities for advanced patient care. During these rotations, students shall be working more independently and have more responsibility for patient care. While supervision and oversight is always necessary for a resident, residents shall be challenged and given opportunities that stretch their abilities and explore 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 and/or local humanitarian opportunities as they present. Humanitarian experiences should be limited to no more than 4 weeks total. Clinical Specialization I and II are designed to be contiguous in nature, although permission may be granted by supervising faculty to allow separate specializations during this period. The six-month specialization period can be completed at any facility qualified by BCM’s MSOP Program as possessing screened, properly-trained, and approved mentors that are subject to the same oversight as all other affiliated facilities.
Course Name: Clinical Specialization II

Course Number: OPCS 76102  Semester Taken: Fall 2, Fall 3  Credit Hours: 6

Course Director: Jared A. Howell, M.S., CPO; Joshua B. Utay, CPO, M.Ed.

Textbook Information: No new texts are required for class. Students may be directed to texts required for other classes as reference materials in this class. Individual students may need access to additional texts and articles as warranted by the research project and/or assignment.

Course Description:

These required specialization rotations are meant to provide comprehensive clinical experience with an emphasis on comprehensive clinical treatment. While patient interactions in this rotation include general prosthetic and orthotic practice, students are encouraged to take advantage of opportunities for advanced patient care. During these rotations, students shall be working more independently and have more responsibility for patient care. While supervision and oversight is always necessary for a resident, residents shall be challenged and given opportunities that stretch their abilities and explore 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 and/or local humanitarian opportunities as they present. Humanitarian experiences should be limited to no more than 4 weeks total. Clinical Specialization I and II are designed to be contiguous in nature, although permission may be granted by supervising faculty to allow separate specializations during this period. The six-month specialization period can be completed at any facility qualified by BCM's MSOP Program as possessing screened, properly-trained, and approved mentors that are subject to the same oversight as all other affiliated facilities.