certification. Prerequisite: HLED170, PETH375, and current CPR. *Fall* (odd years)

PETH440 **(1-3)**
Topics in _____
Selected topics in the area of physical education, health, or recreation. Consult current class schedule for topic offered each year. Repeatable in different content areas. *Fall, Spring*

PETH450 **(1-10)**
Practicum in Health, Physical Education, and Recreation
Supervised experience in area health, fitness, and rehabilitation programs. Limited to junior or senior departmental majors. Graded S/U. *Fall, Spring*

PETH459 **Alt (3)**
Secondary Methods in Teaching Physical Education
The application of teaching principles and strategies as they apply to Secondary Physical Education. Should be taken the senior year. *Fall* (even years).

PETH460 **Alt (1)**
Organization and Administration of Physical Education
Techniques and methods of administration and organization of a physical education department. Areas include facility management, supervision of workers, budgeting, intramural organization, public relations, and legal issues. Should be taken the senior year. *Spring* (even years)

PETH470 **Alt (1)**
Seminar in Physical Education and Health
Explores current issues relevant to physical education and health, by presentations, readings, and projects. Prerequisites: PETH306, 360, 370. *Fall* (even years)

PETH495 **(1-4)**
Independent Study/Reading/Research/Project
Independent Study: Directed study in an area of interest resulting in a formal term paper.
Independent Readings: Weekly meetings with the instructor for individual assignments and reports.
Independent Research: Design and execution of an experiment or causal-comparative research.
Independent Project: Practical or creative experience or project in consultation with instructor. Permission required from the instructor and department chair. Thirty hours of involvement required for each credit. Contract of proposed activity required. Repeatable to 4 credits in each area. *Fall, Spring*

PHYSICAL THERAPY

Berrien Springs Campus
Physical Therapy Building
Department Administration & Admissions
(616) 471-AUPT or 800-827-AUPT
FAX: (616) 471-2867
pt-info@andrews.edu
http://www.andrews.edu/PHTH/

MSPT Program
(616) 471-AUPT or 800-827-AUPT
FAX: (616) 471-2866

Dayton Campus
Andrews University Physical Therapy
2912 Springboro West, Suite 301
Dayton, OH 45439-1674
(937) 298-AUPT or 888-827-AUPT
FAX: (937) 298-9500

Faculty
C. William Habenicht, *Chair*
Wayne L. Perry, MSPT Program Director
Daryl W. Stuart, MPT Program Director
Philip A. Anloague
John C. Banks
Kathy A. Berglund
John Carlos, Jr.
Heidi C. Clarke
Norene M. Clouten
Bonny D. Dent
Betsy Donahoe-Fillmore
Edward G. Greene
Kurt J. Jackson
Harold L. Merriman
A. Lynn Millar
Janet A. Mulcare
Elizabeth Oakley
David P. Village

Physical therapy is a health profession dedicated to evaluating, treating, and preventing physical injury and disease. Physical therapists design and implement the necessary therapeutic interventions to promote fitness, health and improve the quality of life in patients. They also become active in consultation, education and research.

Physical therapists work closely with their client's family, physician, and other members of the medical team to help their

client return to their home environment and resume activities and relationships of normal daily living.

PROFESSIONAL ENTRY PROGRAMS

Master of Science in Physical Therapy (MSPT). This three-year program begins after a student completes 64 semester credits of college prerequisites. A previous college degree is not necessary. Students may earn two degrees: an interim Bachelor of Science (received after two years in the professional program) and an MSPT degree. Beginning with the 2002-2003 academic year, the college prerequisites will change to 92 semester credits with a minimum of 15 upper division credits from at least three content areas. Please contact the Physical Therapy Admissions Office for details (800-827-2878, menu option 0).

Master in Physical Therapy (MPT). The curriculum in this two-year program uses problem-based learning and is designed for individuals who already have completed a baccalaureate degree.

Note: Currently the department is developing an entry-level clinical doctorate degree, Doctor of Physical Therapy (DPT). Please contact the Department of Physical Therapy for information (800-827-2878).

ACCREDITATION AND BOARD CERTIFICATION

The MSPT and MPT programs are both accredited by the Commission on Accreditation in Physical Therapy Education (CAPTE). Graduates may apply to take the state board examination in the state of their choice after receiving either MSPT or MPT degrees.

APPLICATION PROCESS

Information Packets. Packets which describe admission requirements for both professional entry programs are available throughout the year. The information is designed to aid the prospective student through the application and admissions process. Please call 1-800-827-2878, option 1, to request an information packet.

Application Packets. Packets containing all necessary forms and instructions for completing the application process are available by June of each year. Applicants holding a baccalaureate or advanced degree are welcome to apply to both the MPT/Dayton and the MSPT/Berrien Springs programs simultaneously and will receive equal consideration for admission.

Applicants who meet eligibility requirements are invited to participate in a personal interview with admissions personnel.

Notices of acceptance and denial are sent by mail. Classes begin on the Berrien Springs campus in July, and on the Dayton campus in August.

ADMISSION REQUIREMENTS

1. Minimum 3.00 GPA in prerequisite science courses.
2. Minimum overall GPA of 3.00 in total science and general course work including electives for MSPT applicants.
3. Minimum undergraduate degree GPA of 3.00 for MPT applicants.
4. Personal interview for eligible applicants.
5. Documentation of 80 hours (including 20 hours in an inpatient setting) of clinical observation under a licensed physical therapist completed within three years prior to enrollment.

International applicants must also provide:

1. A minimum score of 80 on the *MELAB* or 550 on the *TOEFL* test (if English is not their first language).
2. English translation of relevant course descriptions from college bulletin(s) where course work was completed.
3. Documentation of successful completion of 20 semester credits (or equivalent) of course work taken in the U.S. or Canada with instruction in the English language.
4. If a baccalaureate or advanced degree has been earned, documentation that the applicant graduated from an institution registered in the *International Handbook of Universities*.

MSPT PROGRAM

Berrien Springs, MI

PROGRAM PREREQUISITES

Microbiology—3
One term with lab as required by health-related programs.
AU Students: BIOL260 or CLSC230

Anatomy & Physiology—6
One full sequence of anatomy and physiology with labs as required by health-related programs. A full sequence of general biology with labs or general zoology with labs may be substituted for anatomy and physiology.
AU Students: BIOL111 & BIOL112

Physics & Chemistry—*choose one option*—6/4
Option 1: A full sequence (minimum 6 semester credits) of General Physics with labs as required for physics majors or pre-med students, *plus* a minimum of 4 semester credits of any chemistry with lab.
AU Students: PHYS141-142 & 4 semester credits of any chemistry course with lab
Option 2: A full sequence (minimum 6 semester credits) of General Chemistry with labs as required for chemistry majors or pre-med students, *plus* a minimum of 4 semester credits of any physics course with lab.
AU Students: CHEM131-132 & 4 semester credits of any physics course with lab

Computer Science—0-3
A basic computer course which includes word processing and spreadsheets.
AU Students: Credits taken from INFS110 as needed

Statistics/Math—3
A basic statistics course.
AU Students: STAT285

General Psychology—3
An introductory psychology course.
AU Students: PSYC101

Human Development—2
A course which covers physical, social, and psychological development beginning with conception.
AU Students: EDPC301

* **Behavioral/Social Science—3**
One course from the following options: Sociology, Geography, Anthropology, Minority Groups, Economics, American Government
AU Students: One of BHSC220, BHSC235, IDSC237, SOCI119, GEOG110, ANTH124, ANTH200, PLSC104, or ECON225

* **English—6**
A full sequence of English Composition which includes writing components.
AU Students: ENGL115 & ENGL215

*** Communication—2**

- **Research Projects—2.5**
  Satisfactory completion of a written and oral report on an approved research project (PHTH698).
- **Clinical Education Experiences—12**
  Satisfactory completion of clinical education experiences (PHTH415, 551, 552, 553).

2. No grade lower than C (2.00) in any course in the graduate portion of the program.
3. A minimum GPA of 3.00 for the graduate portion of the program.
4. Satisfactory completion of the *Pre-Clinical Comprehensive Examination*.
5. Satisfactory performance on the written and/or oral comprehensive examinations

See the *Physical Therapy Student Handbook* for additional requirements.

MPT PROGRAM

Dayton, OH Campus

ADMISSION REQUIREMENTS AND PREREQUISITES. Applicants must meet the General Minimum Admission Requirements for graduate degree programs on p. 38-39, including the completion of the Graduate Record Examination (GRE).

1. **Undergraduate Degree.** Baccalaureate degree or its equivalent (as determined by the Academic Records Office) with a cumulative GPA of 3.00 or above.
2. **Computer Science.** Documented competency in word processing and use of spreadsheets.
3. **Psychology.** An introductory course and one human development or developmental psychology course.
4. **Basic Statistics.** A basic statistics course.
5. **Natural/Physical Sciences** with labs.
   24 semester credits with a minimum GPA of 3.00.
   Biological Sciences
   Choose one option:
   Option 1: A full sequence of Anatomy & Physiology with labs
   Option 2: A term of Human or Animal Physiology **and** a term selected from one of the following courses: Human Anatomy with lab, Microbiology with lab, General Biology with lab, or Zoology with lab.
   Physics and Chemistry
   Choose one option:
   Option 1: General Physics and any Chemistry. A full sequence (minimum 6 semester credits) of General Physics with labs as required for physics major or pre-med students, **plus** a minimum of 4 semester credits of any chemistry with lab.
   Option 2: General Chemistry and any Physics. A full sequence (minimum 6 semester credits) of General Chemistry with labs as required for chemistry majors or pre-med students, **plus** a minimum of 4 semester credits of any physics with lab.
   Additional science courses
   If needed to achieve the required credits.

Exceptions to the above prerequisites are considered on an individual basis (e.g., licensed health-care professionals or special-life situations).

CONTINUED ENROLLMENT REQUIREMENTS

1. Progressive enrollment in the physical therapist education program requires successful completion of all PHTH course work including clinical education listed for the previous academic term.
2. A student whose cumulative GPA falls below 3.00 in any given academic term is placed on academic probation. Students who do not increase the cumulative GPA to 3.00 during the academic term of probation are normally asked to withdraw.

See the *Physical Therapy Student Handbook* for additional requirements.

MPT DEGREE REQUIREMENTS

In addition to the General Minimum Requirements for graduate-degree programs on p. 36-37, the following departmental/program requirements apply for graduation.

1. Satisfactory completion of the 78.5 credits of the MPT curriculum:
   Basic Courses
   PHTH505, 506, 508, 510, 515, 518, 540, 546, 606, 608, 661, 662, 663, 664, 665, 671, 672, 673, 674, 675, 681, 682, 683, 684, 685, 687, 688
   Research
   Written and oral research proposal presentation and graduate project (PHTH 691, 692, 693).
   Clinical Education Experiences
   PHTH651, 652, 653, 654.
2. No grade lower than C (2.00) in any course.
3. A minimum cumulative GPA of 3.00.
4. Satisfactory performance on terminal written and clinical examinations.

PROFESSIONAL ADVANCEMENT PROGRAM

This program is designed to provide licensed physical therapists an opportunity to obtain graduate study in the discipline without the need to terminate or significantly change their regular employment or lifestyle. Classes are taught in a short-course format of three-six days per course. All courses may be taken to earn academic credit or continuing education units (CEUs). Options include:

1. Academic credit to earn
   Advanced Master of Physical Therapy
   Advanced Certificate in Physical Therapy
2. Continuing education to earn CEUs.

At the present time, this program has an orthopedic emphasis and enables the clinician to meet the academic and/or continuing education requirements to sit for the examinations offered by the American Physical Therapy Association (APTA) for the Orthopedic Certified Specialist (OCS), and/or the North American Institute for Orthopedic and Manual Therapy (NAIOMT) for the Certified Manual Therapist (CMT).

Currently the department is developing a degree for licensed physical therapists who wish to obtain a clinical doctorate degree in physical therapy. Please contact the Department of Physical Therapy for further information (800-827-2878).

Admission Requirements. In addition to meeting the General Minimum Admission Requirements for graduate degree programs on p. 38-39, the following departmental requirements apply.

1. Hold current licensure as a physical therapist.
2. Submit graduate application.
3. Submit a minimum of two satisfactory recommendations: one from a currently practicing physical therapist, and the other from a medical doctor.

Degree/Certificate Requirements. In addition to the General Minimum Requirements for graduate-degree programs on pp. 43-44, the following departmental/program requirements apply to students graduating from the physical therapy professional advancement program:

1. Satisfactory completion of the courses listed below:

AMPT

- Therapists beginning with a BSPT or MPT degree
  Basic Sciences Core: PHTH507, 531
  Clinical Orthopedic PT Core: PHTH532, 533, 541, 542
  Professional Role Core: PHTH529, 539, 549, 580
  Elective Courses (minimum of 8 semester credits): PHTH543, 550, 561, 562, 571, 572, 577, 578, 587
- Therapists beginning with an MSPT degree
  Basic Sciences Core: PHTH507, 531
  Clinical Orthopedic PT Core: PHTH532, 533, 541, 542
  Elective Courses (minimum of 11.5 semester credits): PHTH543, 550, 561, 562, 571, 572, 577, 578, 587

ACPT

Basic Sciences Core: PHTH507, 531
Clinical Orthopedic PT Core: PHTH532, 533, 541, 542
Elective Courses (minimum of 8 semester credits): PHTH543, 549, 550, 561, 562, 571, 572, 577, 578, 587

2. No grade lower than C (2.00) in any course.
3. A minimum cumulative GPA of 3.00.
4. Satisfactory performance on terminal written examinations.

Courses

(Credits)

See inside front cover for symbol code.

Written permission from the chair of the Department of Physical Therapy is required for non-physical therapy students to enroll in PHTH courses.

PHTH120 **(2)**
Introduction to Physical Therapy
An introduction to the profession of physical therapy with an overview of duties and responsibilities physical therapists perform. Partially fulfills the clinical observation prerequisites for admission to the professional program. Students must have their own transportation for the clinical observation.

MSPT PROGRAM

Berrien Springs, Michigan

PHTH317 **(4)**
Gross Anatomy
A comprehensive study of human anatomy with emphasis on the nervous, skeletal, muscle, and circulatory systems. Provides a solid morphological basis for a synthesis of anatomy, physiology, and the physical therapy clinical sciences. Corequisite: PHTH327.

PHTH324 **(1)**
Therapeutic Procedures
Principles and utilization of basic physical therapy care including patient positioning, transfer and transport techniques, selection and use of wheelchairs and other ambulatory aids, vital-sign determination, ascetic techniques, basic wound care, and blood-borne pathogens. Corequisite: PHTH334.

PHTH326 **(1.5)**
Lifestyle Problems in Physical Therapy
Introduces lifestyle factors that are related to health and disease and emphasizes preventive aspects of proper lifestyle. Topics include addictive substances, proper diet, exercise, and mental health, and the way these impact conditions treated in physical therapy practice.

PHTH327 **(2.5)**
Gross Anatomy Laboratory
Dissection and identification of structures in the cadaver, and the study of charts, models, and prosected materials. Corequisite: PHTH317.

PHTH329 **(1.5)**
Professional Orientation
Introduction to the physical therapist's professional role in various medical and community settings. Medical, legal, ethical, philosophical, and historical concerns of the practice. Introduction to medical documentation with emphasis in problem identification and solution.

PHTH331 **(1.5)**
Therapeutic Modalities I
Hydrotherapy, thermal agents, wound care, and massage: basic principles, physiologic effects, indications, and contraindications. Corequisite: PHTH341.

PHTH332 **(1.5)**
Therapeutic Modalities II
Electrotherapy and mechanotherapy (traction), physical principles, methodologies, physiological effects, indications and contraindications, application and usage of equipment, and treatment rationale. Corequisite: PHTH342.

PHTH334 **(1)**
Therapeutic Procedures Laboratory
Clinical application in utilizing basic physical therapy care including patient positioning, transfer and transport techniques, selection and use of wheelchairs and other ambulatory aids, vital sign determination, ascetic techniques, basic wound care, and blood-borne pathogens. Corequisite: PHTH324.

PHTH341 **(1)**
Therapeutic Modalities I Laboratory
Techniques of hydrotherapy, thermal agents, wound care, and massage. Supervised practicum includes patient positioning and application of the therapy to obtain desired physiological response. Corequisite: PHTH331.

PHTH342 **(1)**
Therapeutic Modalities II Laboratory
Specific electrotherapy and mechanotherapy treatment applications, use of equipment and assessment of physiological responses. Corequisite: PHTH332.

PHTH346 **(2.5)**
Medical Physiology
Medical approach to the study of normal human body functions as related to individual and combined activities of selected organs and systems. Prerequisites: PHTH317 and 327.

PHTH351 **(2)**
Kinesiology I
The study of human movement including an introduction to the basic concepts of biomechanics with an emphasis on human joint/muscle structures and functions. Prerequisites: PHTH317 and 327. Corequisite: PHTH352.

and the resulting anatomical and pathophysiological changes. Clinical presentations and pharmacological treatment of patients with those disease processes considered.

PHTH446 **✦ (1.5)**
Applied Physiology
Discusses the anatomical, histologic, physiologic, and biochemical responses to exercise as related to specific conditions. Corequisite: PHTH456.

PHTH447 **✦ (2)**
Neuroanatomy
Basic anatomy and functions of the central and peripheral nervous systems and their related structures. Studies specific pathways of the central and peripheral nervous systems and takes a detailed look at each of the 12 pairs of cranial nerves. Prerequisite: PHTH317. Corequisite: PHTH457.

PHTH448 **(1.5)**
Neuroscience I

PHTH509 **(1.5)**

Applied Clinical Biomechanics

Advanced course to enhance the understanding of the role of biomechanics in orthopedic injury causation and rehabilitation, with particular focus on how anatomic structures react in an isolated and integrated fashion when placed under the influence of forces in both a static and dynamic environment. Corequisite: PHTH519.

PHTH519 **(1)**

Applied Clinical Biomechanics Laboratory

Advanced practice and application of biomechanics principles in orthopedic injury causation and rehabilitation with particular focus on how anatomic structures react in an isolated and integrated fashion when placed under the influence of focus in both a static and dynamic environment. Corequisite: PHTH509.

PHTH520 **(2)**

Geriatrics

Study of the unique characteristics of the geriatric patient and special needs in evaluation, program design, and treatment.

PHTH525 **(2.5)**

Health Administration

Application of management practices and theory to the modern acute-care facility. Study of the organizational structures, operations, and financing of health-care delivery institutions. Examination of the organization and interrelationship of professional and support elements in the health- care setting: regulation and accreditation, labor relations, community relations, and financial management.

PHTH528 **(1)**

Christian Finance Seminar

Basic principles of stewardship as taught in the Bible in contrast with those taught and practiced by the world. Includes elements of personal and family budgets and investments and how to create and use them.

PHTH534 **(1.5)**

Research Methods and Statistics

Methods of research applied to medical science: critiquing scientific articles, defining and delineating a problem, writing hypotheses, designing the research to provide data to test hypotheses. Fundamental procedures in collecting, summarizing, presenting, analyzing, and interpreting statistical data. Statistical tests applicable to medical specialities. Repeatable. Corequisite: PHTH534.

PHTH536 **(2)**

Psychology of the Physically Impaired

Psychological responses to illness and disability. Interpersonal relationships between the therapist, the family, and the patient

PHTH588 **(1)**
Professional Compendium
Summarization of previous or added learning experiences relative to contemporary issues in physical therapy. An overview of the new graduate's role and responsibility to his/her patients and their families, employer, and community in the expanding physical therapy profession.

PHTH589 **(1-2)**
Professional Seminar
Weekly sessions in which students present and discuss formal case studies from clinical education experiences, including one-day modules on various topics with contemporary relevance.

PHTH590 **(1-4)**
Topics in _____
Selected topics in physical therapy. Permission of department chair required. Repeatable. Specific prerequisites may be required for some subject areas.

PHTH595 **(1)**
Industrial Medicine Laboratory
Observation, demonstration, and practice in the evaluation, treatment, and patient instruction procedures relating to occupational medicine. Corequisite: PHTH585.

PHTH607 **(1.5)**
Women's Health
An advanced understanding of issues relating to the physical therapy assessment and intervention of women's health concerns. Clinical areas covered include pregnancy and childbirth, menopause, post-mastectomy and hysterectomy rehabilitation. Corequisite: PHTH617.

PHTH615 **(1.5)**
Complementary and Aquatic Therapies
An overview of complementary therapies focusing on evaluation and treatment, and advanced aquatic therapy program design and intervention. Corequisite: PHTH625.

PHTH617 **(1)**
Women's Health Laboratory
Advanced practice and application of clinical skills required in the physical therapy assessment and intervention of women's health concerns. Corequisite: PHTH607.

PHTH625 **(1)**
Complementary and Aquatic Therapies
Designed for the clinical application and practice of special techniques in complementary and aquatic therapies. Corequisite: PHTH615.

PHTH648 **(1-4)**
Workshop

PHTH690 **(1-4)**
Independent Study
Individualized study and/or research in a specialized area under the guidance of an instructor. Permission from the department chair required prior to registration. Repeatable to 8 credits.

PHTH698 **(1-2)**
Research Project
Development of a physical therapy related research topic, thesis, and oral presentation.
Summer: Provides students with guidelines and supervision for data collection and identification of appropriate statistical analysis procedures.
Winter: Provides students with guidelines and supervision for the oral research presentation and the completion of the written thesis.

MPT PROGRAM
(Dayton, Ohio)

PHTH505 **(4)**
Functional Physiology
A small group problem-based learning course which focuses on the study of human physiological function of the major organ systems including clinical manifestations associated with patho-physiological conditions. Introduction of applied physiology concepts in musculoskeletal, cardiovascular, pulmonary, endocrine and renal physiology.

PHTH506 **(1.5)**
Professional Seminar I: Health Care
Provides a comparative overview of health care systems and the role of physical therapy. Students learn about the APTA and the development of professional behaviors as they work on personal strategies for integration into the profession. Learning styles are presented and discussed within the context of clinical practice and professional development.

PHTH508 **(1.5)**
Professional Seminar II: Clinical Practice
Designed to introduce the student to clinical practice. Students learn professional communication and documentation skills. Topics include the medical record, personnel supervision, scheduling, legal and ethical issues including sexual harassment and the cost of service delivery.

PHTH510 **(7)**
Anatomy and Movement Science I

PHTH648 (4)

Anatomy and Movement Sc
opics in nce I
PHTH508

approach to clinical decision making is integrated into the application of hydrotherapy, aquatic therapy, superficial and deep heat modalities, and cold modalities.

PHTH546 **(2)**
Maturation Science
Comprehensive course including clinical lab which is designed to examine human development and maturation. Maturational influences on therapeutic intervention are presented while students learn clinical examination and reasoning skills required for physical therapy intervention throughout the life span. Students are introduced to congenital developmental and age-related pathologies.

PHTH606 **(1)**
Professional Seminar III: Business Management

PHTH673 **(1)**
Clinical Skills Laboratory—Neurology II
Designed to facilitate skill acquisition along with clinical reasoning and decision making as it relates to the physical therapy care and management of the pediatric patient. Students learn physical examination tests and measures along with therapeutic interventions appropriate for this population. Therapeutic procedures and protocols appropriate for these patients are taught with special consideration for patient/family needs and education. Corequisites: PHTH663, 683, and 693.

PHTH674 **(1.5)**
Clinical Skills Laboratory—Orthopedics I
Designed to facilitate skill acquisition along with clinical reasoning and decision making as it relates to the physical therapy care and management of the patient with orthopedic pathology. Students learn physical examination tests and measures along with therapeutic interventions including electrotherapy modalities appropriate for this population. Corequisites: PHTH664 and 684.

PHTH675 **(1.5)**
Clinical Skills Laboratory—Orthopedics II
Designed to facilitate skill acquisition along with clinical reasoning and decision making as it relates to the physical therapy care and management of orthopedic patients with complex musculoskeletal pathology and dysfunction. Students learn physical examination tests and measures along with therapeutic interventions including electrotherapy modalities appropriate for this population. Corequisites: PHTH665 and 685.

PHTH681 **(2)**
Clinical Issues Seminar—General Medicine
Presentation/discussion of comprehensive issues related to physical-therapy management of the general medical and postoperative patients. Topics include diabetes, wound care, universal precautions, medical diagnostics, amputees, arthroplasties, treatment of the terminally ill patient, pharmacology, and durable medical equipment. Corequisites: PHTH661 and 671.

PHTH682 **(2)**
Clinical Issues Seminar—Neurology I
Presentation/discussion of comprehensive issues related to physical therapy management of the patient with neurological dysfunction. Topics include: rehabilitation team interaction, psycho- social and socioeconomic issues relevant for this population; motor learning and motor control and neuroplasticity. Corequisites: PHTH662, 672, and 692.

PHTH683 **(1)**
Clinical Issues Seminar—Neurology II
Presentation/discussion of comprehensive issues related to physical-therapy management of the pediatric patient. Topics include treatment within a variety of settings including school-based, hospital-based, private practice, and home care; psycho-social issues relating to the patient and family; funding; documentation; and pharmacological management. Corequisites: PHTH663, 683, and 693.

PHTH684 **(2)**
Clinical Issues Seminar—Orthopedics I
Presentation/discussion of comprehensive issues related to physical-therapy management of the orthopedic patient. Topics include DME, instrumented ligament testing, differential diagnosis, physical principles and biomechanics applied to therapeutic exercise and function, medical diagnostics, surgery and postoperative care, and gait analysis. Corequisites: PHTH664 and 674.

PHTH685 **(2)**
Clinical Issues Seminar—Orthopedics II
Seminar presenting/discussing comprehensive issues related to physical-therapy management of the complex orthopedic patient with select axial musculoskeletal pathologies. Includes chronic pain management, medical diagnostics, surgical intervention for the spine, differential diagnosis, and age-related pathologies. Corequisites: PHTH665 and 675.

PHTH687 **(1.5)**
Advanced Therapy Workshop
Concentrated instruction in selected advanced physical therapy patient-care topics including cardiopulmonary rehabilitation, women's health issues, manual therapy strategies, advanced electrotherapeutics as well as advanced neurological and pediatric therapeutic interventions.

PHTH688 **(2.5)**
Advanced Clinical Seminar
Seminar/discussion on issues related to physical therapy care and the profession. Includes preventive health-care programs, physical-therapy consultation, burn and wound-care management, industrial rehabilitation and sports medicine.

PHTH691 **(2)**
Research I
Introduction to research methods and design; students develop critical reasoning skills necessary to read and evaluate current research literature. Issues related to sampling, control, validity, and reliability. Several parametric statistical procedures and the research proposal process.

PHTH692 **(1)**
Research II
A continuation of PHTH691; focuses on student identification and selection of a research proposal topic. Advanced statistical analysis discussed; also informed consent, writing techniques, funding acquisition, and presentation of findings. Corequisites: PHTH662, 672, 682.

PHTH693 **(1)**
Research III
Research proposal review, revision, and presentation. Students work with the research coordinator and individual faculty research advisors in preparation for completion of the research proposal document.

PROFESSIONAL ADVANCEMENT PROGRAM

PHTH507 **(2.5)**
Functional Anatomy/Neuroanatomy
A review of cadaver anatomy with corresponding lectures on the main functional muscle groups of the extremities and back. The spine, upper and lower extremity joints and soft tissues are covered. In addition, neuroanatomy relevant to physical therapy and sports medicine are discussed.

PHTH529 **(2.5)**
Education Methods and Materials
Examines and applies education theory to skills used by the health care provider in the classroom, community, and clinical facility. Topics include the educational role of the health care provider, the learning process, the taxonomies of learning, learning styles, modality strengths, multiple intelligences, literacy levels, instructional technology, and teaching strategies.

PHTH531 **(2.5)**

NAIOMT Level I: Introduction to Fundamentals of Orthopedic Manual Therapy and Differential Diagnosis

Appropriate skills in basic and objective selective tissue examination necessary for generating a provisional differential

PHTH580 **(2)**
Professional Ethics
Basic ethical theory and methods and their place in the study of human behavior. Medical professional context and challenges of ethical behavior are examined including the relationships between peers, superiors, subordinates, and patients. Contemporary medical ethical issues are discussed and illustrated with actual cases and related to Christian biblical presuppositions.

PHTH648 **(1-4)**
Workshop

PHYSICS

Haughey Hall, Room 212
(616) 471-3430
physics-info@andrews.edu
http://www.andrews.edu/PHYS/

Faculty
Robert E. Kingman, *Chair*
Gary W. Burdick
Mickey D. Kutzner
Margarita C. K. Mattingly
S. Clark Rowland

Physics describes the world in terms of matter and energy and relates the many facets of its phenomena in terms of fundamental law. Its scope includes systems that range in size from sub-nuclear to the entire cosmos. A major .t l of o y0f