



Faculty Qualifications: Discipline Description

**COM M.D. Program**

The qualifications described below represent commonly accepted good practices for teaching in the discipline(s) taught in this unit.<sup>1</sup>

**General description of department, including departmental program and other course offerings<sup>2</sup>**

Beginning in the fall 2009 term, UCF offers the first-professional Doctor of Medicine (M.D.) degree. The M.D. program resides within UCF's College of Medicine (COM) but does not belong to a COM department. Rather, oversight for the M.D. program, its courses (modules), and clerkships must be provided directly by the college. At UCF, direct oversight of the M.D. program is provided by the COM M.D. program curriculum committee and the Assistant Dean for Medical Education who reports to the Associate Dean for Faculty and Academic Affairs. The Dean of the College of Medicine has ultimate responsibility for the M.D. educational program. The faculty that deliver the medical education curriculum, however, do belong to academic units within the college including the Department of Medical Education, the Department of Molecular Biology and Microbiology and the Biomedical Science Center. These faculty include both faculty employed by UCF and volunteer physicians from the community holding affiliate and courtesy faculty appointments with the college.

The M.D. curriculum requires a diverse faculty with many areas of specialization to deliver both the program's basic science and clinical science curricular requirements. UCF's M.D. curriculum is different from traditional medical curricula in that it fully integrates basic and clinical sciences across all four years. It thus requires faculty with expertise in both areas to participate in medical education throughout the duration of the program. Not only are the basic and clinical sciences taught during all four years of study but the two are also integrated within individual modules so that information learned in a classroom or laboratory can be immediately applied to clinical case studies in various settings. The curriculum also places heavy emphasis on interdisciplinarity. In traditional curricula, each course emphasizes a single disciplinary topic (e.g. anatomy, genetics, biochemistry). In contrast, this M.D. curriculum offers a uniquely

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<sup>1</sup> The department/unit chair/director has responsibility for identifying and establishing commonly accepted good practices in each teaching discipline taught in his or her unit and for providing appropriate justification as needed. In the case of an emerging discipline where common collegiate practice has not yet been established, a compelling case must be provided as necessary to substantiate the claims made.

<sup>2</sup> Please provide a general description of the departmental course and program offerings at each level (undergraduate and graduate). (e.g., degree and certificate programs, minors, departmental contribution to interdisciplinary core courses) This section may also be used to provide other pertinent information about the department (e.g., discipline accreditation).

holistic pedagogical approach by incorporating multiple, interrelated disciplinary topics within single modules and interweaving certain themes across the curriculum longitudinally (e.g., ethics, safety, professionalism). The integrative and interdisciplinary approaches described above and in further detail below require the participation of multiple faculty representing a wide variety of disciplines and clinical specialties to deliver each module. As such, the documentation of appropriate faculty teaching qualifications is better organized by module than by single disciplines. In this regard, the curricular focus of each module is provided below. Appropriate degrees and areas of specialization for teaching in each module are provided in the sections that follow.

## **YEAR ONE**

### **HUMAN BODY (HB) MODULES**

Students are required to complete three Human Body modules during their first year of study. The modules serve to provide students a fundamental understanding of how the various basic science disciplines relate to the normal human body.

#### HB-1 Molecules to Cells

The objective of this module is a better understanding of the biology and biological processes of healthy humans from the molecular to the cellular level. This module is designed to cover specific bio-themes each week (e.g., Week 1: Nucleic acids), and integrates the disciplines of biochemistry, molecular biology, genetics, cell biology and pharmacology.

#### HB-2 Structure and Function

This module is a multidisciplinary approach to fully integrate the disciplines of Anatomy, Physiology, Histology, Embryology, and Neuroscience. The course is designed to provide a basic understanding of the normal human body and development, with emphasis on the dynamic relationships between structure and function. Students can apply their understanding of three-dimensional anatomy knowledge to interpreting normal medical imaging. The module runs in parallel, and is integrated with The Practice of Medicine (P1) module, so that students have the opportunity to apply their understanding of the normal body to the diagnosis, treatment, and identification of abnormal findings and disease processes.

This seventeen-week module utilizes multiple learning modalities including Case-based small group experiences, team-based learning, lectures, laboratories (cadaver dissection, medical imaging, and histology, neuroscience and physiology). Small group case-based settings are designed to supplement a strong rational approach towards understanding the concepts discussed in large-group experiences and to enhance clinical problem-solving skills.

#### HB-3 Health and Disease

This module is designed to serve as a firm underpinning for students' knowledge of Microbiology, Immunology, Virology, Pharmacology and Pathology.

## **PSYCHOSOCIAL ISSUES IN HEALTHCARE (C) MODULE**

In concert with some first-year modules, students receive instruction regarding psychosocial issues in medicine

### C-1 Psychosocial Issues

The goal of this module is to provide students with an understanding of the role of psychosocial factors in illness and its treatment. Students are exposed to a range of issues that affect how they diagnose, treat, and interact with patients and their families. Students also learn about wellness and preventive medicine. Students focus on the development and refinement of communication skills, human sexuality and reproductive issues, domestic violence and child/elder abuse, and alcohol misuse. .

## **PRACTICE OF MEDICINE / COMMUNITY OF PRACTICE (P) MODULE**

Immediately upon beginning medical education, M.D. students are introduced to the practice of medicine to begin to gain experience in communication, history taking, physical exam skills, and cultural competency.

### P-1 Practice of Medicine

P-1 is a year-long course that prepares students for the clinical aspects of medicine such as patient interaction, physical diagnosis skills, ethical and medico-socioeconomic issues, and skills necessary for effective communication. Students master basic interviewing techniques and physical examination skills with emphasis on compassionate dealing with individuals. The course also emphasizes data management and effective organization with exposure to information screening and gathering using various information technology sources.

Incorporated into the Practice of Medicine is a Community of Practice component that provides opportunity for additional structured interaction with the Central Florida medical community. Content of this module is fully integrated with the other first-year modules to correlate basic science concepts and apply them immediately to clinical patients. Students encounter Standardized Patients, and use simulation and web-based activities in this module for the learning, practice and assessment of these vital physician skills.

## **FOCUSED INDIVIDUALIZED RESEARCH EXPERIENCE MODULE**

Upon beginning the M.D. program, students begin the process of developing an individualized research project. Each student works with a mentor to develop their project in an area of study that focuses on the student's unique interest and career plan in the fields of health and medicine. The Focused Individualized Research Experience Module continues throughout the first two years of the program.

## I-1 Individual Research

The I-1 module provides training, tools, and mentorship for medical students to successfully conduct a rigorous, independent, and scholarly biomedical research project of their choice.

## **YEAR TWO**

### **ORGAN SYSTEMS (S) MODULES**

Beginning at the end of the first year and continuing throughout the second year, the M.D. curriculum takes an organ system-based approach and applies the basic knowledge of the HB modules to the study of clinical disease, pathological processes and treatment.

#### S-1 Hematology and Oncology

This module is the first of the organ system-based modules and will provide an overview of hematology and oncology, focusing on major disease classification and terminology, signs and symptoms, methods of diagnosis, and differential diagnosis, as well as current treatments dictated and justified by evidence-based medicine. As in all the S modules, this program integrates basic science concepts from the HB modules, as well as the physical diagnosis and communication skills – learned in P-1– and the psychosocial issues in health care (C-1).

#### S-2 Endocrine, Reproductive, and Genitourinary System

The S2 module is an integrated overview of major diseases of the endocrine and reproductive systems. The Endocrine Sequence is designed to expand upon the basic principles of hormone secretion and action and the clinical disorders which result from abnormalities of hormonal activities. During the Reproduction Sequence, preventive health screening, hormonal feedback mechanisms, lifecycle changes, sexual health, and both normal and abnormal pregnancy are included as major topics. Pathology, pharmacology, nutrition, laboratory and clinical medicine disciplines are included and an emphasis is placed on disease pathogenesis, epidemiology, classification, diagnosis, and patient management. This module includes active lectures, clinical skills/simulations, laboratories and case based learning. Students will learn how to apply discipline knowledge to disease processes for these organ systems so that they will be prepared to manage patients in the clinical setting.

#### S-3 Cardiovascular and Pulmonary System

The Cardiopulmonary Module is an integrated overview of major disease conditions of the cardiovascular and respiratory systems. The cardiac sequence (taught first) and pulmonary sequence (taught second) will build on knowledge of these systems learned in the M1 year. Both sequences will use a multidisciplinary approach, incorporating pharmacology,

pathophysiology and clinical medicine. To help prepare students for the M3-4 years, disease etiology, presentation, evidenced-based clinical management and related disciplines will be emphasized. The educational format will vary, including active lectures, team-based learning and laboratories.

#### S-4 GI/Hepatic and Renal System

This module is designed to provide an overview of the pathology, pathophysiology, clinical correlates, diagnostic methods and drugs used in the management of GI, renal and urinary tract diseases. The gastrointestinal system (taught first) and renal sequence (taught second) will build on knowledge of these systems learned in the M1 year. The course includes a variety of teaching methods including traditional and active lectures, clinical correlations, problem solving cases, and virtual laboratories. The goal is to provide students with core concepts for problem solving and further patient-directed and self-directed learning as future clerkship medical students

#### S-5 Skin and Musculoskeletal System

This module is an integrated overview of skin, connective tissues, and musculoskeletal conditions. The purpose of course is to familiarize students with the pathology, pathophysiology, pharmacology, diagnosis, and initial management of conditions these systems. Dermatologic diseases and disorders will be presented first. This will be followed by presentation of rheumatologic conditions including those with dermatologic manifestations. Orthopedic aspects of musculoskeletal care will be presented during the final part of this module. Integrated sessions of rheumatology and orthopedics will emphasize fundamentals of musculoskeletal diagnosis and treatment.

Methodologies will include lectures, case-based discussions, presentation of active patients, videos and simulated surgical demonstrations, labs for dermatologic office procedures, joint aspiration techniques, fracture first aid and immobilization methods. Clinical skills sessions (coordinated with Practice of Medicine) will be used to teach physical examination principles.

#### S-6 Neurologic Systems

This module focuses on the basic neuroscience principles necessary to understand normal neural and psychological function, as well as the pathophysiology of common neurological and psychiatric conditions. As such, it introduces, reinforces, and reviews clinically relevant principles of the following topic areas: neuroanatomy, neurophysiology, neurochemistry, neuropsychopharmacology, neuropathology, differential diagnosis, psychopathology, behavior, and representative clinical disorders. Principles of genetics, development, epidemiology, nutrition, and molecular biology are introduced where their contribution to such disorders is understood. By the end of the module, students will be prepared to apply basic knowledge in a systematic approach to patients with behavioral, psychiatric, and neurological disorders.

### **PRACTICE OF MEDICINE / COMMUNITY OF PRACTICE (P) MODULE**

## P-2 Practice of Medicine

This Practice of Medicine module is designed to complement the learning from P-1 module. This module builds upon physical diagnosis and medical interviewing skills, stressing advanced diagnostic techniques and detection of pathology. In addition to the introduction of pathology into the diagnostic process, key areas of learning in this module include oral presentation skills, development of clinical decision-making and diagnostic reasoning, use and interpretation of diagnostic tests. Special attention is given to the physical examination and approach to the pediatric and geriatric patient. Preventative health care and population screening for disease are taught/reinforced in this module.

Also important in this module are teaching elements of longitudinal curricular themes, such as patient safety, nutrition, medical humanism, ethical principles, palliative and geriatric care. These themes are taught in an integrated fashion, within the context of both paper and simulated case scenarios and Capstone case experiences.

## **FOCUSED INDIVIDUALIZED RESEARCH EXPERIENCE MODULE**

### I-2 Individual Research

The central purpose of this course is to allow students to independently pursue an area of passion that brought them to medical school. Students will receive training, tools, and mentorship enabling them to successfully conduct a rigorous, independent, and scholarly research project. The project may be in any area of interest related to medicine and where a mentor and a rigorous scholarly design can be applied, such as biomedical research, public health, education, community health outreach, simulation, informatics, biomedical engineering, and many others.

## **YEARS THREE AND FOUR**

### **CLERKSHIP MODULES**

The third and fourth years of the curriculum are devoted to clinical experiences through clerkships, selectives, and electives. Fundamental knowledge from the first two years is reinforced through lectures, simulations, journal clubs, and conferences during the seven core clerkships. During the fourth year, students rotate through a prearranged clerkship schedule that includes four weeks of emergency medicine, four weeks of critical care and four weeks of medicine/surgery. In addition, students select from a variety of four-week electives that include opportunities for additional clinical or other learning experiences (e.g., research, residency interviews)

### **LONGITUDINAL THEMES**

There are a number of longitudinal curricular themes that are taught within several modules and clerkships. While not identified as separate courses, they have theme directors who are appointed on the basis of their disciplinary and professional degrees. These include:

## **Medical Ethics**

Prepare students with a method of enquiry that enables them to understand, analyze, critically evaluate and respond to the moral, philosophical and social issues in medicine and health policy as they are encountered in the delivery of health care; to understand and reflect on these issues as they impact the traditions and responsibilities of physicians as individuals and as professionals in society; to learn to recognize and balance their personal integrity and rights to personal beliefs alongside the integrity and rights of others; and to handle internal dissonance between their personal and professional beliefs.

## **Medical Humanities**

Learn, appreciate and utilize literature, arts and humanities as a prism through which to view the personal and professional experiences and characteristics of the physician and the moral, professional and legal responsibilities of the physician in society, to promote physicians' understanding of the patient's perspective in the experience of illness, and to better understand the varies of the human condition and our responsibilities to each other.

## **Medical Informatics**

Learn, understand and utilize the resources, tools and habits of critical thinking to access, evaluate and use information in health care in support of patient care; and to effectively communicate such knowledge at all necessary levels within the profession for effective delivery of health care.

## **Medical Spanish**

Prepare students to communicate with Spanish speaking patients or relatives by providing the opportunity to learn basic Spanish vocabulary and phrases of medical relevance and exposure to cultural issues of significance to physicians by introducing Spanish words and culture into targeted modules in the first and second years. In the third and fourth years students will have opportunities for immersive experiences in service learning in Central Florida and opportunities for participation in electives in Spanish speaking countries.

## **Medical Nutrition**

Learn the relationship between nutrition and health and nutrition and disease prevention and treatment; and learn to apply this knowledge in the overall approach to patient care.

## **Geriatrics**

Learn the spectrum of medical conditions, psychological changes, and socioeconomic factors commonly encountered in older adults; understand special approaches to diagnosis, treatment, and disease prevention in this population; and learn about special considerations and hazards encountered by older adults in living environments and during hospitalization.

## **Palliative/End of Life Care**

Understand principles of treatment for managing non-curable symptoms (whether associated with terminal illness or not); understand the medical, psychological, social, ethical, and legal issues surrounding end-of-life care; learn the basics of medical management for the patient at the end of life; and understand the care needs of individuals and families involved with the dying patient.

### **Medical Imaging**

Understand common modalities of imaging, their physiologic basis, and appropriate use. Demonstrate competency in the use of these modalities in identifying normal and abnormal structures or processes, the ability to effectively communicate observations to appropriate parties, and the ability to critically evaluate new imaging modalities.

### **Patient Safety**

Prepare medical students for safe practices in all areas of the healthcare environment by learning to identify and control hazards that can cause harm to patients and learning good elements of care that are safe, timely, effective, efficient, equitable and patient-centered to prevent harm or injury to patients.

### **Gender Based Medicine**

To learn to recognize sex and gender differences in normal development and pathophysiology as they apply to prevention and management of diseases and be able to access and critically evaluate new information and adopt best practices that incorporate knowledge of sex and gender differences in health and disease.

### **Cultural Medicine**

Understand the factors that enable the health care system to provide care to patients with diverse values, beliefs and behaviors, including tailoring delivery to meet patients' social, cultural, and linguistic needs in order to address the problem of racial and ethnic disparities in health care access, utilization, treatment decisions, quality and outcomes.



## **Terminal degree<sup>3</sup> for each discipline taught in the department**

### **HUMAN BODY (HB) MODULES**

#### HB-1 Molecules to Cells

Doctor of Medicine (M.D.)

Doctorate (e.g., PhD) in any of the following areas:

- Biochemistry (Biological Chemistry, Medical Biochemistry, Nutrition)
- Biology (any one or more of Molecular; Cell or Cellular; and Developmental)
- Biomedical Sciences (Biological Sciences, Biomolecular Science, Molecular Medicine)
- Biophysics
- Cell Science
- Chemistry (Organic Chemistry)
- Genetics (Genetics subspecialty area, Molecular Genetics)
- Health Sciences, Life Sciences
- Pathology (Molecular and/or Cellular Pathology)
- Pharmacology (Pharmaceutical Sciences, Toxicology)

#### HB-2 Structure and Function

Doctor of Medicine (M.D.)

Doctorate (e.g., PhD) in any of the following areas:

- Anatomy (Histology, Embryology)
- Cell Biology (Cell Science)
- Developmental Biology
- Health Sciences, Life Sciences, Biological Sciences
- Neurobiology (Neuroscience)
- Nutrition
- Pathology (Molecular and/or Cellular Pathology)
- Physiology
- Pharmacology (Pharmaceutical Sciences, Toxicology)

#### HB-3 Health and Disease

Doctor of Medicine (M.D.)

Doctorate (e.g., PhD) in any of the following areas:

- Biochemistry (Biological Chemistry)
- Biology (any one or more of: Molecular; Cell or Cellular; and Developmental)

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<sup>3</sup> In most fields, a terminal degree is the commonly accepted highest degree in the given field of study. In such instances, the terminal degree is usually considered to be the academic (or research) doctorate (e.g., Doctor of Philosophy). However, some academic fields have, through custom, recognized terminal degrees that are not doctorates (e.g., Master of Fine Arts, Master of Social Work).

Biomedical Sciences (Biomolecular Science)  
Cell Science, Health Sciences  
Genetics (Genetics subspecialty area, Molecular Genetics)  
Immunology  
Microbiology (Medical Microbiology, Bacteriology, Mycology, Virology)  
Pathology (Molecular and/or Cellular Pathology)  
Pharmacology (Pharmaceutical Sciences, Toxicology)

## **ORGAN SYSTEMS (S) MODULES**

### S-1 Hematology and Oncology

Doctor of Medicine (M.D.)

Doctorate (e.g., PhD) in any of the following areas:

Pathology  
Pharmacology (Pharmacy)

### S-2 Endocrine, Reproductive, and Genitourinary System

Doctor of Medicine (M.D.)

Doctorate (e.g., PhD) in any of the following areas:

Pharmacology (Pharmacy)  
Physiology

### S-3 GI/Hepatic and Renal System

Doctor of Medicine (M.D.)

Doctorate (e.g., PhD) in any of the following areas:

Pharmacology (Pharmacy)  
Physiology

### S-4 Cardiovascular and Pulmonary System

Doctor of Medicine (M.D.)

Doctorate (e.g., PhD) in any of the following areas:

Pharmacology (Pharmacy)  
Physiology

### S-5 Skin and Musculoskeletal System

Doctor of Medicine (M.D.)

Doctorate (e.g., PhD) in any of the following areas:  
Pharmacology (Pharmacy)  
Physiology

### S-6 Neurologic Systems

Doctor of Medicine (M.D.)

Doctorate (e.g., PhD) in any of the following areas:  
Anatomy  
Neurobiology (Neuroscience)  
Pharmacology (Pharmacy)  
Physiology

## **PSYCHOSOCIAL ISSUES IN HEALTHCARE (C) MODULE**

### C-1 Psychosocial Issues

Doctor of Medicine (M.D.)

Doctorate (e.g., PhD) in any of the following areas:  
Pharmacology (Pharmacy)  
Physiology  
Psychology

## **PRACTICE OF MEDICINE / COMMUNITY OF PRACTICE (P) MODULES**

### P-1 Practice of Medicine

Doctor of Medicine (M.D.)

Doctorate (e.g., PhD) in any of the following areas:  
Pharmacology (Pharmacy)  
Physiology  
Psychology  
Nursing

### P-2 Practice of Medicine

Doctor of Medicine (M.D.)

Doctorate (e.g., PhD) in any of the following areas:  
Pharmacology (Pharmacy)  
Physiology  
Psychology  
Nursing

## **FOCUSED INDIVIDUALIZED STUDY AND RESEARCH MODULES**

### I-1 Individual Research

Doctor of Medicine (M.D.)

Doctorate (e.g., PhD) in any of the following areas:

- Anatomy
- Biochemistry (Biological Chemistry, Medical Biochemistry)
- Biology (any one or more of: Molecular; Cell or Cellular; and Developmental)
- Biomedical Sciences (Biological Sciences, Biomolecular Science, Molecular Medicine)
- Biophysics
- Cell Biology (Cell Science)
- Cell Science, Health Sciences
- Chemistry (Organic Chemistry)
- Genetics (Genetics subspecialty area, Molecular Genetics)
- Health Sciences, Life Sciences, Biological Sciences
- Immunology
- Microbiology (Medical Microbiology, Bacteriology, Mycology, Virology)
- Neurobiology (Neuroscience)
- Nutrition
- Pathology (Molecular and/or Cellular Pathology)
- Pharmacology (Pharmaceutical Sciences, Toxicology)
- Physiology

### I-2 Individual Research

Doctor of Medicine (M.D.)

Doctorate (e.g., PhD) in any of the following areas:

- Anatomy
- Biochemistry (Biological Chemistry, Medical Biochemistry)
- Biology (any one or more of: Molecular; Cell or Cellular; and Developmental)
- Biomedical Sciences (Biological Sciences, Biomolecular Science, Molecular Medicine)
- Biophysics
- Cell Biology (Cell Science)
- Cell Science, Health Sciences
- Chemistry (Organic Chemistry)
- Genetics (Genetics subspecialty area, Molecular Genetics)
- Health Sciences, Life Sciences, Biological Sciences
- Immunology
- Microbiology (Medical Microbiology, Bacteriology, Mycology, Virology)
- Neurobiology (Neuroscience)
- Nutrition
- Pathology (Molecular and/or Cellular Pathology)

Pharmacology (Pharmaceutical Sciences, Toxicology)  
Physiology

## **CLERKSHIP MODULES**

Doctor of Medicine (M.D.) and Board certified in core discipline (Medicine, Surgery, Obstetrics and Gynecology, Pediatrics, Family Medicine, Neurology, or Psychiatry)

### **Justification<sup>4</sup> for use of faculty with “other” teaching qualifications<sup>5</sup> and additional faculty teaching qualifications information**

Normally, faculty teaching in the M.D. program will possess a terminal degree. However, in special situations a person lacking a terminal degree that has exceptional professional experience and expertise in a particular area may be asked to provide instruction in their area of expertise. In such instances, a compelling statement of the individual’s relevant and demonstrated competencies and achievements will be provided and supported with appropriate documentation.

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<sup>4</sup> Please use this section to provide justification that helps to make the case for special circumstances that apply to your unit including the use of faculty qualified to teach by “other” qualifications and other special situations. Typically the statements provided in this section should be of a general nature and will not address specific individuals. (Justification for specific individuals is handled separately.) As appropriate, please cite to appropriate authorities to justify departmental practices (e.g., discipline accreditation guidelines, state regulations).

<sup>5</sup> When a faculty member cannot be qualified to teach on the basis of academic credentials (degree(s) and course work) alone, qualifications other than academic credentials (or combined with credentials) may be appropriate for teaching particular courses. Consideration of other teaching qualifications either in conjunction with or in lieu of academic credentials must be made on a case-by-case basis. Such cases should be exceptional and the evidence of other demonstrated competencies and achievements provided must be compelling. It should also show substantial and significant evidence of professional progress as related to the faculty member’s teaching assignment.