

# University of Detroit Mercy School of Dentistry

Biomedical Sciences

Course Syllabus

## Physiology BS 810

### Course Information

Web Address: <http://knowledge.udmercy.edu/BS810>

#### **Course Directors:**

Michael O'Regan, Ph.D.

Office: 243 Manning Hall

Office Hours: Mondays 1-2, Tuesdays 11-12, by appointment or contact Carol Grennan, Administrative Assistant.

Phone: 313-494-6641

Email: [oreganmh@udmercy.edu](mailto:oreganmh@udmercy.edu)

#### **Fall Term, 2007**

DH1 Students (Class of 2009)

Huron, Ward Conference Center, Wednesdays 8:00 – 8:50, Thursdays 9:40 - 11:30

**Credit Hours:** 3.0

**Prerequisites:** None

### Lecturers/Support Faculty

#### **Lecturers:**

M.O'Regan, Ph.D.

### Academic Policies:

All policies in the School of Dentistry Academic Policies Handbook including but not limited to academic integrity, mandatory attendance, professional decorum & dress code, identification (ID) badges, preclinical and classroom decorum, use of cell phone and electronic devices, examination policies and exam/quiz absences apply.

### Accommodations:

If you would like to request a classroom, testing, preclinical, clinical, or other accommodation because of a legally protected disability, or if you might require any special assistance in the event of an emergency or evacuation, please contact the University of Detroit Mercy's Office of University Academic Services (UAC) at 313-578-0310 or email your request for information to [gallegem@udmercy.edu](mailto:gallegem@udmercy.edu)

## **Student Evaluation of Instruction**

Student feedback is valued by the faculty and the administration. All students are required to complete the School of Dentistry's on-line course evaluation by a specified date. Failure to comply by posted deadline dates will result in the receipt of an F (Failing) grade of record for the Evaluation Responsibility Course. Only constructive, professional recommendations will be reported and considered.

## **Course Description**

**Purpose of the course:** Human physiology is a study of function, i.e., "How" the various component systems of the body are regulated. Physiology is quantitative, thus lectures will include graphs and equations.

**Course Goals:** Medical physiology is designed to establish

- 1) a fundamental working knowledge of human systems physiology, and
- 2) a foundation for describing the mechanisms of action underlying human health and disease.

### **Specific Instructional Objectives:**

At the conclusion of learning unit one, the dental hygiene student will be able to:

- understand the basic functioning of cellular physiology, including cellular transport processes, membrane potentials, and muscle contraction

At the conclusion of learning unit two, the dental hygiene student will be able to:

- understand the basic functioning of neurophysiology, including the autonomic nervous system and basic sensory processes especially pain

At the conclusion of learning unit three, the dental hygiene student will be able to:

- understand basic cardiovascular physiology, including the regulation of blood pressure

At the conclusion of learning unit four, the dental hygiene student will be able to:

- understand respiratory physiology, including breathing dynamics, gas exchange and transport in blood

At the conclusion of learning unit five, the dental hygiene student will be able to:

- understand basic renal function and acid base regulation

At the conclusion of learning unit six, the dental hygiene student will be able to:

- understand basic gastrointestinal function, including motility, secretion, digestion and absorption

At the conclusion of learning unit seven, the dental hygiene student will be able to:

- understand basic endocrinology and its pathophysiology

### **Instructional Methods:**

Instructional methods utilized in the course include lecture with frequent in class questions to stimulate discussion

### School of Dentistry Competencies

**Competency-based Education:** Assumes that learning to become an entry-level professional is a progression through stages from novice to competent.

#### Stages of Progression to Competence:

**F or Foundation Knowledge:** Basic knowledge, skills, and attitudes needed to begin the journey to competence.

**N or Novice Level:** Ability to articulate or describe the appropriate skills, knowledge, and professional attitudes. Novices need structure, clarity of goals, single and clearly explained approaches.

**B or Beginner Level:** Combines the appropriate skills, knowledge, and professional attitudes, all of which are performed with guidance and correction.

**C or Competent Level:** Combines the appropriate supporting skills, knowledge, and professional attitudes, all of which are performed reliably without assistance.

	<b>Competencies of the Graduating Dental Hygiene Student</b>	<b>Addressed</b>	<b>Evaluated</b>	<b>Method</b>
<b>1.</b>	The graduate demonstrates interpersonal communication skills to function successfully in a multicultural work environment with diverse populations.	NO	NO	NA NA NA
<b>2.</b>	The graduate makes professional decisions affecting the practice of dental hygiene that satisfy legal, societal and ethical principles.	NO	NO	NA NA NA
<b>3.</b>	The graduate performs routine evaluation of self and staff members and takes corrective action to address perceived deficiencies.	NO	NO	NA NA NA
<b>4.</b>	The graduate critically evaluates the validity of new information, new products, and/or techniques and their relevance to the practice of dental hygiene.	YES	NO	NA NA NA
<b>5.</b>	The graduate applies business and practice management skills.	NO	NO	NA NA NA
<b>6.</b>	The graduate promotes health maintenance and disease prevention.	YES	F	Written Evaluation NA NA

7.	The graduate applies the principles of infection control and environmental safety.	NO	NO	NA NA NA
8.	The graduate obtains, records, updates and organizes accurate and complete medical/dental histories including pertinent psychological and socioeconomic information.	YES	F	Written Evaluation NA NA
9.	The graduate performs, records and organizes a physical assessment appropriate for dental care.	YES	F	Written Evaluation NA NA
10.	The graduate determines differential, provisional or definitive dental hygiene diagnoses related to and congruent with the diagnosis of the dentist and other health professionals.	YES	F	Written Evaluation NA NA
11.	The graduate develops alternative dental hygiene care plans which are sequenced to address patients' needs, consistent with assessment and diagnoses.	NO	NO	NA NA NA
12.	The graduate establishes with the patient a mutually acceptable dental hygiene care plan.	NO	NO	NA NA NA
13.	The graduate monitors and provides for patient comfort associated with dental hygiene care.	NO	NO	NA NA NA
14.	The graduate delivers and/or manages planned dental hygiene treatment and education in sequence and in accordance with accepted standards of care.	NO	NO	NA NA NA

### **Course Policies**

- The Blackboard course site will be available for announcements, asking questions via forums, and the posting of Exam grades
- Attendance will be monitored daily. If you are not in the classroom during a PRS question your score on that question will be a zero. There will be a 10 minute restroom break between lecture hours on Thursdays. Students are expected to be on time for lectures and should remain in the classroom until the break. No cell phones or audible beepers are allowed.
- Examination policies: students late for an examination will not be provided additional time. All bookbags and coats should be placed in the back of the room. No cell phones or PDAs are allowed. Excused absences for a scheduled exam will result in a rescheduling of the exam. Questions on a make-up exam may differ from those on the scheduled exam.
- Tablet PCs can be used to download lecture handouts prior to class meeting.

## Textbooks and Resource Materials

- The recommended textbook is Physiology, L.S. Costanzo, Saunders, 1998.

## Evaluation and Grading

### Grading Scale

<b>A</b>	=94-100%
<b>A-</b>	=90-93%
<b>B+</b>	=87-89%
<b>B</b>	=83-86%
<b>B-</b>	=80-82%
<b>C+</b>	=77-79%
<b>C</b>	=73-76%
<b>C-</b>	=70-72%
<b>D+</b>	=67-69
<b>D</b>	=60-66
<b>F</b>	=below 60%
<b>W</b>	Withdraw, no credit
<b>I</b>	Incomplete, a temporary grade not of record

### Course Grade Components

Midterm Exam	33%
Final Exam	33%
Class Participation	<u>34%</u>
	100%

### Course Evaluation Methods

**Class Participation:** There will be daily in class questions using the PRS system.

**Inappropriate usage of the PRS system will result in the loss of ALL PRS points.**

The total value for all questions = 34% of your final grade. Missed questions cannot be made up. Your grade on Class Participation will be calculated as a Z-score  $\{(your\ PRS\ score - mean\ PRS\ score) / PRS\ standard\ deviation\}$ .

**Exams:** There will be 2 scheduled exams.(50 minute clinical correlation testlets). Your grade on each exam will be calculated as a Z-score  $\{(your\ exam\ score - mean\ exam\ score) / exam\ standard\ deviation\}$ . To calculate your final grade, the mean of your exam scores and Class Participation score will be normalized (T-score = mean z-score \*10 + 81) with the course mean = 81.0 % and the course standard deviation = 10.

# SCHEDULE

<b>Date</b>	<b>Time</b>	<b>Day</b>	<b>Lecture Topic</b>	<b>Chapter</b>
8-15	8-8:50	Wednesday	Cellular Physiology: homeostasis, ECF. ICF	1
8-16	9:40-11:30	Thursday	Cellular Physiology: membrane transport	1
8-22	8-8:50	Wednesday	Cellular Physiology: membrane potentials	1
8-23	9:40-11:30	Thursday	Cellular Physiology: synapses	1
8-29	8-8:50	Wednesday	Cellular Physiology: skeletal muscle & reflexes	1, 3
8-30	9:40-11:30	Thursday	Cellular Physiology: smooth and cardiac muscle	1, 4
9-5	8-8:50	Wednesday	Autonomic Nervous System	2
9-6	9:40-11:30	Thursday	Neurophysiology: somatosensory	3
9-12	8-8:50	Wednesday	Neurophysiology: pain and local anesthesia	3
9-13	9:40-11:30	Thursday	Neurophysiology: taste and olfaction	3
9-19	8-8:50	Wednesday	Cardiovascular physiology: cardiac cycle	4
9-20	9:40-11:30	Thursday	Cardiovascular physiology: hemodynamics	4
9-26	8-8:50	Wednesday	Cardiovascular physiology: MABP	4
9-27	9:40-11:30	Thursday	Cardiovascular physiology: microcirculation	4
10-3	8-8:50	Wednesday	<b>MIDTERM EXAM</b>	
10-4	9:40-11:30	Thursday	Respiratory Physiology: mechanics of breathing	5
10-10	8-8:50	Wednesday	Respiratory Physiology: Gas exchange	5
10-11	9:40-11:30	Thursday	Respiratory Physiology: O <sub>2</sub> and CO <sub>2</sub> transport	5
10-17	8-8:50	Wednesday	Renal Physiology: body fluids	6
10-18	9:40-11:30	Thursday	Renal Physiology: filtration	6
10-24	8-8:50	Wednesday	Renal Physiology: reabsorption	6
10-25	9:40-11:30	Thursday	Acid/base	7
10-31	8-8:50	Wednesday	GI motility & secretions	8
11-1	9:40-11:30	Thursday	GI digestion & absorption	8
11-7	8-8:50	Wednesday	Endocrine Physiology: hormones	9
11-8	9:40-11:30	Thursday	Endocrine Physiology: hypothalamus/anterior pituitary	9
11-14	8-8:50	Wednesday	Endocrine Physiology: pancreas	9
11-15	9:40-11:30	Thursday	Endocrine Physiology: thyroid	9
11-21	8-8:50	Wednesday	Endocrine Physiology: adrenals	9
11-27	9:40-11:30	Thursday	Endocrine Physiology: calcium	9
			<b>FINAL EXAM</b>	

**The Final Examination will be given during the Final Exam Period and the date will be announced.**