

**Pharmacology & Pharmaceutical Marketing**  
**David Segarnick, PhD**  
**Rutgers University/NJ Medical School, Fall 2023**  
**Tuesday from 7:00 – 8:30 PM**  
**September 5 – October 31, 2023**  
**(This Course is Offered Remote via Videoconference Only;**  
**Registration is limited to 50 students)**

**Description:**

This course will help bridge the gap between science theory and practice in modern pharmaceutical and biotechnology business using major blockbuster drug launches over the past 20 years as examples. Each class will focus on a single therapeutic area (eg, Type 2 diabetes, cervical cancer, multiple sclerosis, GERD) and will be divided into two sections: first a review of relevant underlying pharmacological principles (eg., pharmacodynamics/mechanism of action, pharmacokinetics, toxicology, and clinical study data) followed by case examples of how these concepts were used to develop specific product marketing and educational campaigns to support product differentiation.

**Course Objective:**

After completing this course, students will better understand the relationship between basic pharmacological principles and how pharmaceutical companies use these principles to differentiate their products in competitive therapeutic areas and gain marketing advantage across a wide range of therapeutic areas.

**Course Syllabus:**

9/5//23	<b>Erectile Dysfunction:</b> Phosphodiesterase-5 (PDE5) inhibition and the marketing of Levitra, Viagra and Cialis	G&G (12 <sup>th</sup> Ed). Section I Chapter 3
9/12/23	<b>Type 2 Diabetes:</b> Insulin resistance, insulins and the marketing of Levemir and Lantus	G&G (12 <sup>th</sup> Ed) Section V Chapter 43
9/19/23	<b>Inflammatory Disorders:</b> Selective COX-2 inhibition and the marketing of Celebrex and VIOXX	G&G (12 <sup>th</sup> Ed) Section IV Chapter 34
9/26/23	<b>Multiple Sclerosis:</b> T and B lymphocytes and the marketing of Tysabri, Gilenya and Aubagio	G&G (12 <sup>th</sup> Ed) Section IV Chapter 35
10/3/23	<b>Pneumococcal Pneumonia:</b> Pneumococcal vaccine serotypes and the marketing of Prevenar 13 and Synflorix	G&G (12 Ed) Section VII Chapter 48 & 53
10/10/23	<b>Cervical Cancer:</b> Human papilloma virus (HPV) vaccine serotypes and the marketing of Cervarix (bivalent) and Gardasil (quadrivalent)	<a href="http://www.ncbi.nlm.nih.gov/pubmed/22920953">http://www.ncbi.nlm.nih.gov/pubmed/22920953</a> <a href="http://www.ncbi.nlm.nih.gov/pubmed/21819329">http://www.ncbi.nlm.nih.gov/pubmed/21819329</a> <a href="http://www.ncbi.nlm.nih.gov/pubmed/21415377">http://www.ncbi.nlm.nih.gov/pubmed/21415377</a> <a href="http://www.ncbi.nlm.nih.gov/pubmed/21166376">http://www.ncbi.nlm.nih.gov/pubmed/21166376</a>

10/17/23	<b>Overactive Bladder:</b> Anticholinergics and the marketing of Vesicare, Enablex, Ditropan and Sanctura	G&G (12 <sup>th</sup> Ed) Section II Chapter 9
10/24/23	<b>GERD/Erosive esophagitis/Barrett's esophagus/adenocarcinoma of the esophagus:</b> Stereochemistry and the marketing of Nexium in the proton-pump inhibitor wars	G&G (12 <sup>th</sup> Ed) Section VI Chapter 45
11/31/23	<b>Final Exam</b>	

**Textbook:**

Weekly reading assignments will be given from “The Pharmacological Basis of Therapeutics (12<sup>th</sup> Edition) hardcopy or online versions with readings corresponding to specific issues covered in each lecture. Students will be expected to come to class having read the assigned pages with a basic understanding of the pharmacological principles to be covered (which will be reviewed at the beginning of each class). This text is expensive, so earlier and/or used editions are acceptable. The text is also available via the university online library.

**Method of Instruction:**

This course will be lecture/discussion-based using PowerPoint slides that will be available on CANVAS to each registered student prior to each class. Assigned readings from the course textbook will provide the student with the basic information required to follow the clinical cases each week. Students will be expected to be conversant in the basic pharmacological concepts and drugs as they relate to pharmaceutical educational and marketing campaigns discussed in class and their application to clinical cases, controversies, and data interpretation. All lectures will be recorded and available on CANVAS.

**Course Evaluation:**

- Regular attendance and active classroom participation/discussion demonstrating understanding of assigned reading – 33.3%
- Final exam – 66.6%