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Pharmacogenomics: Practical Tools for the 21st Century Medical Student Spring 2019

<u>Course Dates:</u>	January 8, 15, 22, 29 Tuesdays, 6:00-8:00 PM
<u>Maximum Students:</u>	30
<u>Class Year:</u>	MS1 and MS2
<u>Course Director:</u>	Mylynda Massart, MD, PhD Assistant Professor of Family Medicine Philip Empey, PharmD, PhD Associate Director for Pharmacogenomics of the Pitt/UPMC Institute of Precision Medicine
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Description:

The field of precision medicine is rapidly advancing and will affect how the next generation of physicians practice medicine. Pharmacogenomics is a particularly practical field that is already having real-world implications in terms of how patient medication doses are prescribed. More and more patients are also using direct to consumer genetic testing services such as 23andMe and Ancestry.com, which are beginning to return pharmacogenomic information to consumers.

In this context and climate, it is essential for medical students to become familiar with the implications of pharmacogenomics as well as how to practically apply that information for their patients. This course intends to expose students to the broad field of precision medicine, with a focus on skill-building that students will be able to use in the future.

Course Objectives:

1. Students will develop a nuanced understanding of the opportunities and limitations offered by pharmacogenomic testing
2. Review fundamental pharmacokinetic and pharmacodynamic principles
3. Develop a competency in interpreting pharmacogenomic information
4. Learn how to share pharmacogenomic information in the context of a patient encounter

Requirements:

None

Pre-Requisites:

None

COURSE OUTLINE

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January 8, 15, 22, 29
Tuesdays, 6:00-8:00 PM

Course Directors:

Mylynda Massart, MD, PhD

Assistant Professor of Family Medicine

Philip Empey, PharmD, PhD

Associate Director for Pharmacogenomics of the Pitt/UPMC Institute of Precision Medicine

Location: Scaife Hall Lecture Room 1

Session 1: 1 hour

Introduction to Precision Medicine

- This introductory session will give an overview of how precision medicine is being applied in the field of pharmacogenomics
- We will discuss several hot topic aspects of precision medicine, including its place in the context of health disparities, data security questions, and direct to consumer testing such as 23andMe

Student Preparation: None

Session 2: 2 hours

SNPs and CYPs: A Review of Pharmacokinetics and Pharmacodynamics

- This lecture will provide an overview of the relevant pharmacokinetic and pharmacodynamics properties that are essential to understand for the implications of pharmacogenomics testing

Student Preparation: None

Session 3: 2 hours

Gene-Drug Pairs

- Students will learn about the current state of pharmacogenomic testing and how many common drugs already have FDA approved PGx labels (Hint: it is more than 100)
- Students will learn about current guidelines for pharmacogenomics, including PharmGKB and Clinical Pharmacogenetics Implementation Consortium (CPIC)

Student Preparation: None

Session 4: 2 hours

Practical Application of Pharmacogenomics

- In this interactive session, students will have the opportunity to practice interpreting pharmacogenomics results for a sample patient
- In the second half of the class, students will role-play speaking with a patient or a pharmacist about pharmacogenomic findings

Student Preparation: None