

# Principles of Microbiology and Immunology

## PHAR 7202

Fall 2022

### Course Description

This course provides an overview of medical immunology and microbiology.

### Additional Course Information

This course provides an overview of medical immunology and medical microbiology and the host-microbe interactions for infectious diseases in humans. It integrates the basic concepts of the immune response to infectious agents and other triggers and their roles in disease. An introduction to the rational management, prevention, and control of infectious diseases is provided.

**Course Credit:** 2 credit hours

**Pre-Requisites:** None

**Co-Requisites:** None

### Class Meeting Days, Time & Location:

Tuesday, 2:00 pm – 4:00 pm; W.T. Brookshire Hall room 236

### Course Coordinator

David Pearson., Ph.D.

W.T. Brookshire Hall, Office Room 363

Phone number: 903.566.6109

Email: [dpearson@uttyler.edu](mailto:dpearson@uttyler.edu)

Office hours: Tuesday 12-2 pm

Also Open Door Policy

Preferred method of contact: Email

### **Fisch College of Pharmacy (FCOP) and UT Tyler Policies**

This is part 1 of the syllabus. Part 2 contains UT Tyler and the FCOP course policies and procedures. These are available as a PDF at <https://www.uttyler.edu/pharmacy/academic-affairs/files/fcop-syllabus-policies.pdf>. For experiential courses (i.e., IPPE and/or APPE), the Experiential Manual contains additional policies and instructions that supplement the Syllabus Part 1 and 2. Please note, the experiential manual may contain policies with different deadlines and/or instructions. The manual should be followed in these cases.

### **Required Materials**

Most course required materials are available through the Robert R. Muntz Library. These materials are available either online\* (<http://library.uttyler.edu/>) or on reserve.

1. Review of Medical Microbiology and Immunology 15E (15th Edition) by Warren E. Levinson et al. 2018. Lange-McGraw Hill Education. ISBN-13: 978-1259644498; ISBN-10: 1259644499
2. (On Access Pharmacy) Jawetz Melnick & Adelberg's Medical Microbiology, 28e Stefan Riedel, Jeffery A. Hobden, Steve Miller, Stephen A. Morse, Timothy A. Mietzner, Barbara Detrick, Thomas G. Mitchell, Judy A. Sakanari, Peter Hotez, Rojelio Mejia
3. Other required materials will be posted on the classes' Canvas site. The site address is: [uttyler.edu/canvas](http://uttyler.edu/canvas).

## **Recommended Materials**

1. \*Lippincott's Illustrated Reviews: Microbiology, 3<sup>rd</sup> Edition  
Cynthia Nau Cornelissen, Bruce D. Fisher, Richard A. Harvey ISBN: 978-1-60831-733-2, 2013.

## **Course Format**

The course may include, but are not limited to, the following activities:

1. Independent study of selected readings
2. Mini Lecture
3. Individual readiness assessment tests (iRATs)
4. Team-based learning, active learning strategies:
  - a. Team readiness assessment tests (tRATs)
  - b. Team application of content and concepts
  - c. Guided Question and Answer sessions
  - d. Practice test questions and discussion

## **Course Learning Outcomes (CLOs)**

| <b><sup>1</sup>CLOs</b>   | <b>Related PLO(s)</b> | <b>EPA</b> | <b>Assessment Methods</b> | <b>Grading Method</b> | <b>JCPP Skill(s) Assessed</b> | <b>AACP Std. 11 &amp; 12</b> |
|---|-----------------------|------------|---------------------------|-----------------------|-------------------------------|------------------------------|
| 1. Describe the physiological processes during an immune response, including the soluble and cellular components involved                                   | 1                     | NA         | 1,2                       | ES                    | NA                            | NA                           |
| 2. Relate immune mediated processes, including hypersensitivity and autoimmunity, to the pathogenesis of disease.   | 1                     | NA         | 1,2                       | ES                    | NA                            | NA                           |
| 3. Describe use of biologics in therapeutics that target immune function or activity.   | 1                     | NA         | 1,2                       | ES                    | NA                            | NA                           |
| 4. Apply and interpret clinical diagnostics and methods to identify clinically important microorganisms, including bacteria, viruses, fungi, and parasites. | 1                     | NA         | 1,2                       | ES                    | NA                            | NA                           |
| 5. Apply knowledge of bacterial structure and function to targeting of antimicrobial drugs and mechanisms of drug resistance.                               | 1                     | NA         | 1,2                       | ES                    | NA                            | NA                           |

## Course Assessment

|   | Assessment Method   | Description  |
|---|---|--|
| 1 | Exams may include Multiple Choice or Multiple Selection Question(s) | <i>Standard MCQ, Select All that apply, and fill in the blank questions in ExamSoft.</i> |
| 2 | Exams may include Open Ended Question(s)                            | <i>Short Answer Questions</i>  |

### Grading Policy & Grade Calculation

Grades will be determined based on evaluation of individual and team readiness assessment tests (iRATs, tRATs), individual and team cumulative assessment tests (iCATs, tCATs), midterm examinations, final written examinations, graded application assignments. Examinations, RATs and CATs may consist of, but not limited to, multiple-choice, true/false, fill in the blank, short-answer, essay, and problem-based questions.

During the time the course is in progress, students whose cumulative course percentage falls below 70.0% may receive an academic alert and be subject to periodic course content review in special sessions with the course instructor(s). The student's faculty advisor may receive an academic alert to act upon on the student's behalf.

**All examinations, tests, and assignments, including the final examination, will be cumulative.** Students are responsible for material presented during the prior courses. The grading scale for all graded material is below. The final course grade will be assigned according to the calculated percentage and the percentages will not be rounded upward or downward. For additional information, see examination/assessment policy below.

#### Standard Grade Calculation\*

|                                    |             |
|------------------------------------|-------------|
| <b><u>Individual Component</u></b> | <b>95%</b>  |
| iRATs/Other Individual Activities  | 10%         |
| Midterm Exam                       | 40%         |
| Final Exam                         | 45%         |
| <b><u>Team Component</u></b>       | <b>5%</b>   |
| tRATs                              | 3%          |
| Team Application(s)/Team Projects  | 2%          |
| <b><u>Total</u></b>                | <b>100%</b> |

**The final course letter grade will be determined according to the following grading scheme:**

|   |                 |
|---|-----------------|
| A | 90 - 100 %      |
| B | 80 - 89.999 %   |
| C | 70 - 79.999 %   |
| D | 65.0 - 69.999 % |
| F | < 65.0 %        |

## PHAR 7202 (Microbiology & Immunology) Course Schedule

| WEEK | DAY<br>Tuesday         | TOPIC  | Instructor         | CLO | Disease<br>State             |
|------|------------------------|--|--------------------|-----|------------------------------|
| 1    | **08/23                | Intro to Immunology; Innate and Adaptive Immune Systems  | Dr. Pearson        | 1   | S10.04, 05                   |
| 2    | **08/30                | Organs, Tissues and Cells of the Immune System   | Dr. Pearson        | 1   | S10.04                       |
| 3    | **09/06                | Immune Cell Interactions   | Dr. Pearson        | 1   | S15.99<br>Other<br>Infection |
| 4    | **09/13                | Soluble Mediators and Actors of the Immune System  | Dr. Pearson        | 1   | S10.04                       |
| 5    | **09/20                | Hypersensitivity Reactions   | Dr. Pearson        | 2   | S10.04                       |
| 6    | **09/27                | Autoimmunity and Immunodeficiency  | Dr. Pearson        | 2   | S10.04, 05                   |
| 7    | **10/04                | Biologics: Vaccines/ Monoclonal Antibodies/ Biologicals  | Dr. Pearson        | 3   | S10.04,15.<br>19             |
| 8    | 10/11                  | <b><u>Midterm Exam</u></b>   | Dr. Pearson        |     |                              |
| 9    | **10/18                | Scope of Microbiology and Virology<br>[Clinically Important Bacteria I]  | Dr. Pearson        | 5   | S15.99<br>Other<br>Infection |
| 10   | **10/25                | Prokaryotes vs Eukaryotes, Bacterial Growth, & Control of<br>Growth [Clinically Important Bacteria II]   | Dr. Pearson        | 4   | S15.99<br>Other<br>Infection |
| 11   | **11/01                | Metabolism and Clinical Diagnostics and Identification<br>Methods [Clinically Important Bacteria III]  | Dr. Pearson        | 5   | S15.99<br>Other<br>Infection |
| 12   | **11/08                | Prokaryotic Genetics and Mutations<br>[Clinically Important Bacteria IV]   | Dr. Pearson        | 5   | S15.99<br>Other<br>Infection |
| 13   | **11/15                | Antimicrobials: Mechanisms of Action & Resistance<br>[Clinically Important Bacteria [Clinically Important Bacteria V]<br>Pathogenic Mechanisms of Bacteria | Dr. Pearson        | 5   | S15.99<br>Other<br>Infection |
| 14   | 11/22-27               | <b><u>Thanksgiving Holiday</u></b>   | Relax and<br>Enjoy |     |                              |
| 15   | **11/29                | Parasitology & Mycology  | Dr. Glavy          | 5   | S15.99<br>Other<br>Infection |
| 16   | <b>Final Exam: TBD</b> |  |                    |     |                              |

***Please note that dates, topics, and assignments are subject to change. In the event of a change, you will be given ample notification of the change.***

**\*\* Expect an iRAT/tRAT**

### **Recording of Class Sessions**

The student must request prior permission from the instructor to record the class or photograph course materials. Class sessions may be recorded by the instructor for use by students enrolled in this course. Recordings that contain personally identifiable information or other information subject to FERPA shall not be shared with individuals not enrolled in this course unless appropriate consent is obtained from all relevant students. Class recordings are reserved only for the use of students enrolled in the course and only for educational purposes. Course recordings should not be shared outside of the course in any form without express permission.