

## Phase 1 Elective Description

**Campus:** Grand Forks

**Elective/Experience Title:** Pulmonary Pathogens

**Location of Elective:** Virtual

**Preceptor(s):** Masfique Mehedi, Ph.D.

**Department:** Biomedical Sciences

**Course #:** MED 9601-13

**Other Phases That Can Enroll:** no other phases can enroll

**Elective Length:**  4 weeks  8 weeks

**Phase 1 Period(s) Offered:**  Summer-I

Summer-II

**Number of students per period:** 20

**Course Prerequisites:** Basic Biology

### Estimated # of Hours Required per week

Face-to-Face/Zoom 3 Independent/Asynchronous 15

### Will any Face-to-Face/Zoom hours occur on Weekends?

Yes \_\_\_ No

### Will any Face-to-Face/Zoom hours occur on after 5pm?

Yes \_\_\_ No

**Purpose:** To provide students with an introduction to 1. pulmonary pathogens including bacteria, viruses and fungi, 2. differential diagnostics and biomarkers of common respiratory diseases, and 3. current treatments for common respiratory diseases. The course is designed to enhance understanding of pathogen-specific disease pathophysiology by focusing on virology, bacteriology, immunology, pathology, therapeutics, and pharmacology.

**Objectives:** Following successful completion of this elective, the student will be able to:

1. Summarize the basic pathologic process involved in viral and bacterial respiratory pathogens (competency 2.1, 2.2).
2. Discriminate between different types of pathogen-induced lung responses (competency 2.1, 2.2, 2.3).
3. Summarize tropism and differences in pathogen-specific respiratory disease (e.g. bronchiolitis and pneumonia) and systemic disease (multi-organ failure) outcomes.
4. Summarize markers for exacerbation severity in chronic lung diseases.
5. Summarize the role of immunological and cytoskeletal factors in pulmonary disease exacerbation (competency 2.2).
6. Case-discussion (or USMLE question) related to pathogen-induced lung diseases.
7. Effectively generate and deliver educational materials to peers and instructor (competency 1.3, 1.6, 1.7, 1.8).
8. Research and generate a synopsis (final project) on a student selected topic under the subject “pulmonary pathogens and relevant treatment”. (competency 1.1, 1.3, 1.8).

**Instructional Activities:** During this elective, the student will be involved in/experience:

1. 8 Zoom class/ online lectures
2. Assigned readings
3. Online discussion board
4. Teaching topic(s) to peers
5. Final project: 1000-word topic synopsis

Grading for this elective is Satisfactory/Unsatisfactory.

**Criteria for Grading:** During and following this elective, the preceptor will:

1. Utilize the standardized UNDSMHS phase I elective evaluation form.
2. By direct observation of the student's participation in online discussion, discussion board, and topic teaching evaluate the student's knowledge of RSV, SARS-CoV-2 and bacterial pneumonia and the pathological response to these pulmonary pathogens (objective 1-5).
3. By direct observation of teaching and review of presentation materials evaluate the student's ability to prepare and deliver teaching related to the course topics (objective 7).
4. By direct observation of the student's participation in online discussion and feedback on the student's participation in peer-to-peer study (objective 6).
5. By review of the student's written synopsis (1000 words; no word-limit for reference section; no plagiarism acceptable) evaluate the student's ability to research and compile a synopsis on a topic related to pulmonary pathogens and relevant treatment (objective 8).