

Phase I Non-Clinical Elective Description

Campus: Northeast (Grand Forks)

Department: Biomedical Sciences

Elective/Experience Title: Pandemics: lessons from the Black Plague to COVID-19

Location of Elective: Asynchronous and Zoom

Course Number: MED 9601-02

Preceptor(s): David Bradley, PhD, Matthew Nilles, PhD

Course Prerequisites: Units 1 & 2

Period(s) Offered: Phase 1 2-week elective period

Revised Curriculum Phase(s): I

Number of students per period: Unlimited

Elective Length in weeks: 2

Estimated # of Hours Required:

Face-to-Face/Zoom: 6 hrs Independent/Asynchronous: 30hrs

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

Yes___ No X

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

Yes___ No X

Purpose:

The overall purpose of this elective is to use major infectious-disease pandemics—including SarsCoV-2 (known as COVID-19) and Yersinia pestis infection (plague, historically known as the Black Death)—as clinical contexts for integrating foundational medical science concepts introduced in Units 1–3.

Through examination of these pandemics, students will apply principles of biochemistry, cell biology, immunology, microbiology and virology, host–pathogen interactions, vaccination, and public health. The course will also integrate relevant concepts in neurology and renal, cardiovascular, and respiratory physiology to strengthen clinical-science understanding of disease pathogenesis, systemic complications, prevention, and therapeutic approaches.

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

1. Given a scientific or case scenario of a putative pandemic, generate an accurate evaluation of diagnosis, treatment, and prevention efforts, as determined by preceptor review. (SMHS competencies 1.10, 2.6, 2.8)
2. Having chosen a specific pandemic subtopic, generate an effective peer teaching activity utilizing a wide range of scientific resources and materials to teach peers, as determined by preceptors. (SMHS competencies 1.3, 1.6, 1.7, 1.8, 4.5)
3. Given a microbial pathogenesis/immunology proficiency quiz, identify correct answers $\geq 70\%$ of the questions. (1.2, 1.3)

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

1. Students will asynchronously review articles and instructional materials provided by the preceptors on the Black Death, the 1918 influenza pandemic, and COVID-19. These materials will support students in understanding the bacterial or viral pathogenesis of each causative agent and the corresponding host immune responses. During

the first week, students will meet with the preceptors to discuss their findings and compare the pathogenesis, immune responses, and clinical consequences associated with each bacterial or viral cause.

2. During the second week, each student will independently investigate a topic related to pandemics, with particular consideration of areas such as medical inequities, ethical issues, public health, vaccination, or another relevant topic approved by the preceptor.

Students will select a focused subtopic, conduct an appropriate review of available evidence and perspectives, and develop an individual creative presentation based on their findings. The selected subtopic must receive preceptor approval before preparing the final product.

Students may choose the presentation format that best communicates their topic and analysis, including a PowerPoint presentation, role-play skit, pre-recorded video, poster, or written paper. On the final day of the elective, each student will present or share their completed work with peers and preceptors.

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

1. Utilize the standardized UNDSMHS phase I elective evaluation form. (Objectives 1 & 2)
2. Students will take a basic microbial pathogenesis/immunology proficiency quiz and will be expected to score $\geq 70\%$. Two attempts will be allowed to reach proficiency. (Objective 1 & 3)
3. Students will be required to attend and participate in all discussions as well as the final day presentations. (Objectives 1 & 2)

Grading for this elective is Satisfactory/Unsatisfactory. Students who receive an unsatisfactory grade for the elective will be required to remediate the elective as per criteria set forth by the elective director(s) and in consultation with Assistant Dean for Medical Education.